

The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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LONDON, SATURDAY, JANUARY 20, 1877.

[WITH SUPPLEMENT.] {PRICE SIXPENCE PER ANNUM, BY POST, £1 4s.}

JAMES H. CROFTS, STOCK AND SHARE BROKER,
AND MINING SHARE DEALER,
No. 1, FINCH LANE, CORNHILL, LONDON, E.C.
ESTABLISHED 1842.

Business transacted in all descriptions of Mining Stocks and Shares (British and Foreign), Consols, Bonds (Foreign and Colonial), Railways, Miscellaneous, Insurance, Assurance, Telegraph, Shipping, Canal, Gas, Water, and Shares.
Business negotiated in Stocks and Shares not having a general market value.
Business in COLLIERY and IRON Shares, and in the principal WAGON and CARRYING COMPANIES of the North of England and Scotland.
Business in all the principal COTTON SPINNING Shares.
J. H. CROFTS, having now established CORRESPONDING AGENCIES in all the Towns of the United Kingdom, is prepared to deal in the various LOCAL and Shares at close market prices.
Accounts opened for the Fortnightly Settlement.
Monthly and Daily Price Lists issued.
Bankers: City Bank, London; South Cornwall Bank, St. Austell.

RAIL DEALINGS in the following, or part—
100 Flagstaff, £3 17s. 6d.
20 Frontino, £1 17s. 6d.
20 Glyn, £2 2s.
5 Great Laxey.
25 St. West Van, 9s. 6d.
100 Javali, 11s.
100 Llanrwst, £2 2s.
20 Marke Valley, 30s.
15 Monydd Gorrdu, £3 2s.
10 New Cook's Kitchen, 35s.
20 North Laxey, 21s. 6d.
100 Pestana, 4s. 6d.
50 Parys Mount, 10s. 3d.
40 Penrithall, 11s. 6d.
10 Pennant.
25 Pennerley, £1 2s. 6d.
10 Richmond, £7.
50 Prince of Wales, 4s. 9d.
5 Roman Grav., £14.
20 Rookhope, 21s.
1 So. Caradon, £120.
10 So. Conderrow, £3 2s.
1 South Crofty, £18.
5 Tankerville, £3 2s.
25 Talybont.
5 Tincroft, £20 2s.
40 Van Consoles, £2.
25 W. Tankerville, £1 2s.
5 West Chiverton, £19.
2 West Tolgus, £23.
5 West Seton, £30.
10 West Craven Moor.
40 Wheel Grenville.
10 Wheel Uny, £2 2s.
20 Wheel Agar, £2.
5 Wh. Crebor, £3 2s.
5 Roman Grav., £14.

* Shares sold for forward delivery (one, two, or three months) on deposit of 20 per cent.
SPECIAL BUSINESS IN POSITIVE ASSURANCE SHARES.
Business on hand in all the principal TIN, COPPER, and LEAD SHARES.

JARUUM, HOTEL, AND MISCELLANEOUS SHARES.—SPECIAL BUSINESS in Brighton Aquarium, Royal Westminster Aquanham Hotel, Inns of Court Hotel, Queen's Hotel (Norwood), Milner's Advocate Chemical, Lawes Chemical, North-Eastern Banks.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

COAL AND IRON SHARES.—BUSINESS in all the PRINCIPAL SHARES and DEBITORS. FOR SALE:—
100 Consol, £13.
50 Chipp House, £3 3s. 9d.
20 Cakemore.
10 Darlington.
10 Newport Aber., £3 2s.
20 Whitehaven.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

COTTON SPINNING SHARES.—BUSINESS in all OLDHAM SHARES, and in those of other DISTRICTS.
SPECIAL BUSINESS in the following:—

Name of Mill.	Last four dividends, per cent.	Closing quotations, January 19.	Buyers.	Sellers.
Central	30, 26, 30, 10	£ 3 1/2	£ 3 1/2	
Greenacres	30, 30, 20, 5	4 1/2	4 1/2	
Green Lane	30, 25, 30, 25	80	82	
Oldham Twist	6, 32, 26, 12	25 1/2	26 1/2	
Royston	30, 30, 10, 10	2 1/2	3	
Shaw	12 1/2, 20, 16, 10	2 1/2	3	
Star	17 1/2, 25, 20, 8	2 1/2	3	
Windsor	30, 26, 20, 10	3	3 1/2	

JAMES H. CROFTS, 1, FINCH LANE, LONDON.

FOREIGN BONDS.—ARGENTINE—EGYPTIAN—RUSSIAN, SPANISH, TURKISH, SPECIAL BUSINESS, and latest information.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

RAILWAYS.—SPECIAL BUSINESS. Fortnightly accounts opened on receipt of the usual cover.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

MR. WILLIAM H. BUMPUS,
STOCK AND SHARE BROKER,
44, THREADNEEDLE STREET, LONDON, E.C.
[Established 1867.]

SPECIAL BUSINESS, at close prices, in the SHARES of all the principal HOME and FOREIGN MINES.

BUMPUS devotes special attention to MINING INVESTMENTS, and is in a position to give reliable information and advice respecting the same.

FOR SALE, at prices annexed:—
20 Glyn, £2 2s.
100 Gold Run.
50 Kapanga, £4 2s.
50 Last Chance, 21s. 6d.
20 Leadhills, £4 2s.
100 Marke Valley, 22s.
100 Malabar.
20 M. Chiverton, off. wd.
25 New Quebrada, £4 2s.
40 North Laxey, 16s. 6d.
40 Penrithall, 11s. 6d.
10 Pateley Bridge, £2 2s.
30 Pennerley, 20s. 6d.
50 Parys Mount, 11s. 3d.
100 Pestana.
20 Richmond, £7.
70 Rookhope, 21s. 6d.
10 Roman Grav., £14 2s.
15 South Conderrow.
20 Tankerville, £3 2s.
5 Van, £39.
40 Van Consoles, 40s. 6d.
10 Wheel Agar.
25 W. Tankerville, 39s. 6d.
10 Wye Valley, £2 2s.
20 West Godolphin.
20 Wheel Crebor.

IMPORTANT.
The Capitalists, and all who seek SOUND and PROFITABLE INVESTMENTS, the following are confidently recommended, and they will be found worth the attention of every Investor, viz:—
ARGENTINE COMPANY (LIMITED).
CONDOS COMPANY OF CHILI (LIMITED).
BLUE TENT HYDRAULIC GOLD MINES (LIMITED).
Particulars of the Mines, and every information concerning the several Companies, may be obtained (in the form of a Circular) on application to Mr. Bumpus, who has special facilities for dealing in the shares.

RICHMOND CONSOLIDATED—FLAGSTAFF.—Investors and others interested in these companies, who may be desirous of obtaining information and advice as to operations in the shares at the present time, are requested to communicate with the undersigned.

WILLIAM HENRY BUMPUS, SWORN BROKER.
Office: 44, Threadneedle Street, London, E.C.

Business transacted in Stock Exchange Securities and Miscellaneous shares of every description. Fortnightly accounts opened. References given and required when necessary. A Stock and Share List forwarded free on application.
BANKERS—THE NATIONAL PROVINCIAL BANK OF ENGLAND, E.C.

MR. THOMAS THOMPSON, JUN., 1, PALMERSTON BUILDINGS, BISHOPSGATE STREET, LONDON, E.C.

Mr. THOMPSON strongly recommends the purchase of the shares of the CHAPEL HOUSE COLLIERY COMPANY (Limited) for investment. This company, with- out stopping the stagnation in trade, clears a profit of 2s. per ton on its coal, and when the new works are completed he present handsome returns will be much augmented.

MR. GEORGE BUDGE, STOCK AND SHARE DEALER, 4, ROYAL EXCHANGE BUILDINGS, LONDON, E.C. (Established 1842).
has SPECIAL BUSINESS in—Cakemore Colliery, Chapel House, Crebor, Sparsmoor, South Crofty, Monydd Gorrdu, Derwent, Wheel Aberdunant, Talybont, Exchequer, Balmynear, Bodidris, East Chiverton, Cornwall, Don Pedro, Trebigh Consols, Combmartin. Special business in prospecting lead mine, see specimens at the office of the company from recent discoveries.

MESSRS. PETER WATSON AND CO.,
54, OLD BROAD STREET, LONDON, E.C.
BUSINESS IN STOCKS AND SHARES.
RAILWAYS, BANKS, DIVIDEND LEAD MINES, &c.
BANKERS: THE ALLIANCE BANK (LIMITED).
A CIRCULAR published MONTHLY. Single Copy, 6d.; Annually, 5s.

MR. ALFRED E. COOKE,
STOCK AND SHARE DEALER,
76, OLD BROAD STREET, LONDON, E.C.
(Established 1853.)

Transacts every description of Business in ENGLISH FUNDS, RAILWAY STOCKS, and MISCELLANEOUS SHARES.
SPECIAL ATTENTION GIVEN TO MINING ENTERPRISE.
TRADING COMPANIES' SHARES (including COTTON SPINNING) dealt in at close prices.
COLLIERY SHARES dealt in on best terms.
SHARES IN NEGLECTED and DEPRESSED SECURITIES dealt in.
Every description of STOCKS and SHARES, either for INVESTMENT or SPECULATION, BOUGHT and SOLD at net prices.

1877.—SAFE AND LUCRATIVE MINING and other INVESTMENTS, to yield about TEN PER CENT., with a prospect of a great rise.

PANDORA, MONYDD GORDDU, BODIDRIS, and CAKEMORE COLLIERY. SPECIAL BUSINESS.

"SPECIAL INVESTMENT CIRCULAR."
In consequence of the great demand for the January number, no more copies for this month can be supplied. Early application is requested for the February number, to be published on the 1st prox. It is the MOST VALUABLE and UNIQUE CIRCULAR issued.
MR. ALFRED E. COOKE,
76, OLD BROAD STREET, LONDON, E.C.
(Established 1853.)

BUSINESS in the FOLLOWING SHARES. Telegrams or letters replied to immediately:—
10 Alltair.
5 Argentine.
110 Aberdunant.
30 Asheton.
30 Bodidris.
50 Cathedral.
30 Cardiff and Swansea.
50 Chontales.
15 Chapel House.
5 Chicago.
10 Derwent.
40 Don Pedro.
20 East Van.
15 East Chiverton.
5 Eberhardt.
10 Flagstaff.
10 Frontino.
15 Great West Van.
20 Grogwinion.
30 Glenroy.
5 Glyn.
30 Cardiff and Swansea.
15 I. X. L.
50 Javali.
15 Llanrwst.
15 Last Chance.
5 Leadhills.
20 Ladywell.
10 Newport Abercarn.
5 West Pateley Bridge.
10 Penrithall.
15 Pestana.
100 Parys Mountain.
5 Pennant.
50 Pennerley.
100 Plynlimmon.
5 Roman Gravels.
25 St. Patrick.
5 Tankerville.
1 Van.
10 Van Consoles.
10 Wheel Crebor.
20 Wheel Agar.
15 West Asheton.
25 West Tankerville.
5 West Pateley Bridge.

MR. T. E. W. THOMAS, SHARE BROKER,
3, GREAT WINCHESTER STREET BUILDINGS, E.C.
Established 1857.

The following are the latest prices at which business could be done. Where the difference between the buying and selling price is wide transactions may be effected at an intermediate price.

Buyers.	Sellers.	Buyers.	Sellers.
Bodidris	£ 1 1/2	Pennant	£ 5 1/2
Derwent	2 1/2	Pennerley	3 1/2
Devon Great Consols	4 1/2	Penrithall	10s. 11s.
Don Pedro	11s. 13s.	Plynlimmon	6s. 8s.
Eberhardt	8 1/2	Prince of Wales	2s. 3s.
East Caradon	1 1/2	Richmond	6 1/2
East Van	8 1/2	Roman Gravels	13 1/2
Exchequer Gold	1 1/2	Rookhope	20s. 22s.
Flagstaff	3 1/2	Santa Barbara	2 1/2
Frontino	1 1/2	San Pedro	1 1/2
Glenroy	1 1/2	So. Conderrow	6 1/2
Glyn	2 1/2	So. Roman Gravels	10s. 12s. 6d.
Great Laxey	19 1/2	Tankerville	8 1/2
Javali	10s. 12s.	Tincroft	20 21
Last Chance	1 1/2	Van	38 39
Ladywell	6 1/2	Van Consoles	1 1/2
Leadhills	6 1/2	West Asheton	1 1/2
Marke Valley	6 1/2	West Chiverton	18 19
North Laxey	20s. 22s.	West Tankerville	1 1/2
New Quebrada	3 1/2	Wheel Crebor	2 1/2
New Zealand Kapanga	3 1/2	Wh. Grenville	4 1/2
Parys Mountain	9s. 11s.	Wheel Agar	2 1/2

MR. JAMES STOCKER, STOCK AND SHARE BROKER,
2, CROWN COURT, THREADNEEDLE STREET, LONDON, E.C.

BUSINESS transacted in all kinds of STOCK EXCHANGE SECURITIES, also in every description of BRITISH and FOREIGN MINING, COLLIERY, MANUFACTURING, and other SHARES.

SPECIAL BUSINESS in the following:—
East Van, £2 2s.
Leadhills, £6 2s.
Van, £3 2s.
Tankerville, £8 2s.
Roman Gravels, £14.
Derwent, £3 2s.
Great Laxey, £2 2s.
Devon Consols, £4 2s.
So. Conderrow, £6 2s.
Wheel Crebor, £2 2s.
Chapel House.
Phosphate Sewage.
Richmond, £7.
Exchequer, 40s.
Argentine.
Don Pedro, 12s. 3d.
Gold Run, 14s. 6d.
Tecomis, 10s.
Sweetland Creek, 7s. 6d.
North Laxey, 20s. 9d.
Rookhope, 21s.
Cathedral, 22s. 6d.
Pennerley, 17s. 6d.
Ladywell, 24s.
Penrithall, 11s. 6d.
Asheton, 28s.
Van Consoles, 40s.
Marke Valley, 23s. 9d.
Parys Mountain, 10s. 6d.
Trebigh Consols, 6s. 6d.
Wheel Grenville.
Flagstaff, £3 14s. 6d.
Chicago.
I. X. L., 18s. 6d.
Javali, 11s. 6d.
Port Phillip, 12s. 3d.
Santa Barbara, £2 2s.
York Peninsula.
N. Zealand Kapanga, £4.

JAMES STOCKER, SWORN BROKER.
Consols, Foreign Bonds, Railways, Bank, Telegraph, Gas, and all miscellaneous Shares bought and sold, and fortnightly accounts opened for same. Shares sold for forward delivery on receipt of cover. List of prices and every information forwarded on application. References given and required when necessary.
BANKERS: LONDON AND WESTMINSTER.

MESSRS. ENDEAN AND CO., STOCK AND SHARE DEALERS, 85, GRACECHURCH STREET, LONDON, E.C.

ESTABLISHED TEN YEARS.
MR. E. J. BARTLETT, STOCK AND SHARE DEALER,
No. 30, GREAT ST. HELEN'S, LONDON, E.C., has SPECIAL BUSINESS in St. Patrick, Wheel Whisper, Pennerley, South Tolcarne, East Lovell East Van, Pennant, East Caradon, West Craven Moor, Lead Hills, Minera, Pary Mountain, West Godolphin, and Wheel Grenville shares.

JOSEPH JOHN PYNE,
MINING AND STOCK AND SHARE DEALER,
6, BISHOPSGATE STREET, LONDON, E.C.

Mr. PYNE having been connected with MINING ENTERPRISE for upwards of FOURTEEN YEARS, and having been a DIRECTOR of MINES in SHROPSHIRE, MONTGOMERYSHIRE, CARDIGANSHIRE, CARNARVONSHIRE, YORKSHIRE, and in VENEZUELA, has had great opportunities of becoming acquainted with this particular branch of industry, and will always be desirous of giving every information in his power to all Investors transacting business with him.

ALL DESCRIPTIONS OF SHARES are dealt in, including BRITISH and FOREIGN STOCKS, and RAILWAY SECURITIES.
BANKERS—THE ALLIANCE BANK (LIMITED).

MR. CHARLES THOMAS,
MINING AGENT, STOCK AND SHARE DEALER,
3, GREAT ST. HELEN'S, LONDON, E.C.

Seventh Edition. Price One Shilling.
INVESTMENTS AND SPECULATIONS.
Published by—
CHARLES THOMAS, No. 3, GREAT ST. HELEN'S, LONDON, E.C.

MESSRS. A. W. THOMAS AND CO.,
10, COLEMAN STREET, E.C.
MINING AGENTS, AND STOCK AND SHARE DEALERS.
BUYERS of Minera, South Conderrow, and West Godolphin Shares.

FERDINAND R. KIRK, STOCKBROKER,
5, BIRCHIN LANE, E.C.

SHARES WANTED:
40 Birdseye, 12s. 6d.
20 Bilson, £7 1/2.
50 Chapel House, £2 2s.
50 Cardiff, £1 1/2.
25 Cedar Creek, 12s. 6d.
10 Chicago, £5 1/2.
75 Credit Foncier, £1 1/2.
40 Don Pedro, 10s.
10 Diamond Rock, £3 1/2.
15 Eberhardt, £8 1/2.
20 Flagstaff, £2 2s.
40 Javali, 10s.
20 Milner's Safe, £9 1/2.
30 Newport Aber., £3 1/2.
60 North Laxey, 18s. 9d.
10 Parnson, £6.
80 Rookhope Val., 19s. 6d.
50 West Tankerville, £1 1/2.

Offers invited for 100 Alamillos; 25 New Sharlaton.
FOREIGN BONDS.—Portuguese and French Renten are being extensively bought for investment. Speculation is still chiefly confined to Russian, 73, Egyptian, 73, Turkish, '65, '71, and Argentine, '68. The amount of "cover" necessary for opening fortnightly accounts in these may be ascertained on application.

RAILWAYS.—The principal business is centred in Caledonian, North British, and Great Eastern. The dividend of the former is expected to be good; that of the latter can hardly be considered disappointing.
MINING.—The most promising Progressive Mines are Pandora, Pennant, North Laxey, Rookhope, and West Tankerville, in all of which a large business is being done. It is in Progressive Mines, of course, that the large profits are made, but Great Laxey, Roman Gravels, Van, and others pay good dividends at their present prices.

Further particulars of FERDINAND R. KIRK, Stockbroker, 5, Birch Lane, E.C. Bankers: London and Westminster, and City Bank.

GROGWINION LEAD MINE (LIMITED).
MESSRS. H. HALFORD AND CO., STOCK AND SHARE BROKERS, OF EXCHANGE CHAMBERS, CHANGE ALLEY, LOMBARD STREET, LONDON.

Strongly recommend the ABOVE MINE as one of the BEST and SAFEST MINING INVESTMENTS. The dividends are declared half-yearly—the next one will be paid in February, and will be at the rate of 20 per cent. The "reserves" of ore in the mine are valued at £300,000. Every information upon application to the above.

WYE VALLEY LEAD MINE (LIMITED).
The shares of this company should be bought. The lode has recently increased very much in richness—a course of lead, worth nearly 10 tons per fathom, is now being worked. The next dividend will show a great improvement.

NOTICE.
BROKERS OR DEALERS HAVING SHARES FOR SALE in either GROGWINION, WYE VALLEY, or WEST WYE VALLEY MINES, can FIND IMMEDIATE PURCHASERS on application to—
H. HALFORD AND CO.,
STOCK AND SHARE BROKERS,
EXCHANGE CHAMBERS,
CHANGE ALLEY, LOMBARD STREET.

MR. EDWARD ASHMEAD, 62, CORNHILL, LONDON, LONDON MINE AGENT, ACCOUNTANT, AND AUDITOR.

Constantly connected with Mining since 1856. Information given on Mining Properties as an Investment. Purchases and Sales of Mining Shares effected. Statistical Table of the Dividend Mines of 1876, as in the Mining Journal of this day, separately printed, price Sixpence.

MR. W. MARLBOROUGH, STOCK AND SHARE DEALER,
29, BISHOPSGATE STREET, LONDON, E.C. (Established 20 Years)

can sell the following SHARES, at prices annexed:—
15 Alltair.
15 Argentine, £5 1/2.
80 Almada, 6s. 9d.
30 Cedar Creek, 12s.
10 Chicago, £5 18s. 9d.
25 Chapel House, £3 2s.
20 Derwent, £3 10s.
150 Don Pedro, 12s. 9d.
15 Eberhardt, £8 1/2.
10 East Van, £8 1/2.
50 Exchequer, £2 2s.
25 East Caradon, 34s.
50 Frontino, £1 15s.
25 Flagstaff, £2 2s.
25 Glenroy, £1 15s.
20 Glyn, £2 3s. 9d.
25 I. X. L., 18s. 9d.
75 Javali, 11s. 9d.
10 Leadhills, £6 2s.
30 Last Chance, 20s. 3d.
6 Minera, £18.
20 Marke Valley, £1 1/2.
35 North Laxey, 21s. 3d.
15 N. Zealand Kapanga, £3.
50 Nant y Glo & Blaica, £3 1/2.
15 Pennant.
70 Pestana, 4s. 9d.
100 Port Phillip, 12s. 3d.
40 Pennerley, 22s.
50 Parys Mount, 10s. 6d.
60 Penrithall, 11s.
30 Rookhope, 21s. 3d.
20 Rookhope, 21s. 3d.
10 Richmond, £5 1/2.
25 St. Harmon, £3 1/2.
40 San Pedro, 22s.
25 Sweetland, 7s. 6d.
20 So. Craven Moor (offer wanted).
25 Nant y Glo & Blaica, £2 1/2.
20 W. Tankerville, £1 1/2.
5 Wye Valley, £6 1/2.

WILLIAM B. COBB,
62, CORNHILL, LONDON, E.C.
Business transacted in every description of British and Foreign Stocks, Mining Shares, &c.
Fortnightly accounts opened in rails, foreign stocks, and mining shares.
BANKERS: The Alliance Bank (Limited).

MESSRS. ENDEAN, FISHER, AND CO.,
STOCK AND SHARE DEALERS,
3, LOMBARD COURT, LOMBARD STREET, LONDON, E.C.
BANKERS: London and Westminster, Lombury.
From a thorough knowledge of their business, based upon many years' experience, are PREPARED to ADVISE on every description of SECURITIES for INVESTMENT or SPECULATION.

Their sources of information. Home and Foreign, being various and extensive, E. F. and Co.'s clients and the general public may place the most implicit confidence in such advice as they deem it their duty to give. Statements emanating from their firm will be founded only on well-authenticated facts, and may, therefore, be relied upon.
Orders or Telegrams for the Sale or Purchase, for cash or account, promptly executed on receipt.

BODIDRIS LEAD MINE.—Shares now in demand at 1 to 1 1/2.—The prospects of this undertaking are most encouraging, and the mine, although now only sunk to a shallow depth, bids fair to become of equal importance to its neighbour, the celebrated Minera, and other well-known rich lead mines in the same district. There is every indication that as development progresses, and greater depth is attained, the lodes already opened upon will largely increase in their yield of ore. Further particulars may be had on application to Messrs. ENDEAN, FISHER, AND CO.

COTTON SPINNING SHARES.—SPECIAL BUSINESS at the following prices:—
Star ... £ 2 1/2 to £ 2 1/2
Royston ... 2 1/2 to 2 1/2
Shaw ... 2 1/2 to 2 1/2
Windsor ... 2 1/2 to 2 1/2
Central Spinning ... 2 1/2 to 2 1/2
Greenacres ... 4 1/2 to 4 1/2
Green Lane ... 79 to 82
Twist ... 25 to 27
ENDEAN, FISHER, AND CO., 3, LOMBARD COURT.

NOTICE.—We regret to find that some of our clients have been induced to PURCHASE LLANRWST SHARES, advertised in this Journal at low prices about two months since, and up to the present time have been unable to obtain the delivery of the same. Purchasers of these shares when offered at low prices will do well to see that the transfer is certified by the Secretary of the company, or the certificate attached before they part with their money.
ENDEAN, FISHER, AND CO., 3, LOMBARD COURT, E.C.

STOCK.—HAYWARD TYLER AND CO., of LONDON, have now ready ENGINES, BOILERS, and "UNIVERSAL" STEAM PUMPS, having made extensive alterations in their premises to enable them to keep a stock.

Royal School of Mines.

THE CHEMISTRY OF COAL—No. VI.

[BY OUR SPECIAL REPORTER.]

In the sixth and concluding lecture of the course Dr. FRANKLAND first recapitulated briefly the main features of the manufacture of coal gas, as described in the preceding lecture. He then referred to the properties of the diluting gases, hydrogen, carbonic oxide, and marsh gas (or fire-damp), which are present in large quantities in the gas, but contribute nothing to the luminosity of the flame. The following facts enable us to compare these gases one with another, so as to determine which is the least harmful; the greater the quantity of heat evolved in combustion, and of carbonic acid generated, the more objectionable the gas. Of hydrogen, 1 cubic foot measured at 60° Fahr. and 30" barometric pressure, consumes $\frac{1}{2}$ cubic foot of oxygen, generates no carbonic acid, and heats 1 lb. 13 ozs. of water from 32° to 212° Fahr., or 2500 cubic feet of air from 60° to 66.4° Fahr. Of carbonic oxide, 1 cubic foot consumes $\frac{1}{2}$ cubic foot of oxygen, generates 1 cubic foot of carbonic acid, and heats 1 lb. 14 ozs. of water from 32° Fahr. to 212° Fahr., or 2500 cubic feet of air from 60° to 68.6° Fahr. Of marsh gas, 1 cubic foot consumes 2 cubic feet of oxygen, generates 1 cubic foot of carbonic acid, and heats 5 lbs. 14 ozs. of water from 32° to 212° Fahr., or 2500 cubic feet of air, from 60° to 80.8° Fahr. It is obvious, therefore, that hydrogen is the least and marsh gas the most objectionable ingredient as a diluent. In 5 cubic feet of London gas there are usually about 2½ cubic feet of hydrogen and 2 cubic feet of marsh gas. As to the source of luminosity in flames, it was due to the presence of heavy vapours, and that the light from ignited gases increased with increase of density. A great deal depends on the mode in which the gas is burnt. At first it was burnt in a simple tubular jet, which is the worst way in which gas can be burnt to give a good luminous effect. This is due to the fact that the gas rushes out with great velocity, and therefore the luminous vapours remain for a short time only in the flame; and, moreover, the gas as it issues mixes with a large quantity of air, which enables these vapours to burn inside the flame, where they add nothing to the luminosity. One of the greatest improvements ever made in the burning of gas was made by a Manchester gentleman, whose very name is now forgotten, when he allowed two of these jets to impinge against each other, by which means the velocity is greatly checked and the light wonderfully increased. This is the principle of the fish-tail burner, the most common burner in the country, which has two holes bored in it in such directions that the jets of gas impinge on each other. In the Argand burner there are a number of jets arranged in a circle, and air is supplied to the inside and outside; unless, however, the consumer is something of a philosopher, and pays attention to the proper regulation of the supply of air, he will burn much gas to waste. The Argand was further improved by Mr. Leslie, who also introduced chimneys of various lengths, by means of which the nature of the flame could be regulated according to the requirements of the consumer. As a rule the improvements in the burning of gas consists mainly in checking the velocity, so as to allow the luminiferous gases to remain longer in the flame. For a long time no one thought of further checking the velocity in the fish-tail burner, till Mr. Scholl hit on the project of introducing into the flame a small piece of platinum—called a "perfector"—upon which the jets impinged, and by this means the luminosity is increased. The bat-wing burner is also very common; the orifice in this consists in a fine slit, and since this is more liable to get stopped up than the holes in the fish-tail burner, and for other reasons, on the whole the fish-tail is superior to the bat's wing. Out of coal and coal matters we now extract paraffin oil, which is of great utility as a light-giving material; it is identical with petroleum, which is in fact, produced by a natural distillation of coal. In this small lamp, which only costs about 7d. complete, we are getting for the cost of one candle a beautiful white light, equal to that of five or six candles. Also there is extracted the beautiful white solid paraffin, of which candles are made. The great advantage of these materials is that they contain no diluting substance, all their constituents—carbon and hydrogen—are useful for luminous effects. Moreover, for the same amount of light they heat the air far less, and vibrate it to a much smaller extent than does coal gas. Owing to these and other substances obtained from it, coal tar instead of being regarded as a nuisance and worthless, as it formerly was, is now a very formidable rival in value to the coal gas itself. The great cheapness of coal gas and paraffin oil over the old sources of light may be seen from the following comparison of cost of the light of 20 sperm candles, each burning for 10 hours at the rate of 120 grs. per lb.: Wax, 7s. 2d.; spermaceti, 6s. 8d.; tallow, 2s. 8d.; sperm oil, 1s. 10d.; coal gas, 4d.; candle gas, 3d.; paraffin (as candles), 3s. 11d.; paraffin oil, 3d.; rock oil, 3d.

The coal tar has been investigated chemically, and its constituents have been taken apart; altogether at least 50 different things have been extracted from that black material. From some of these the now well-known coal tar dyes are made. The four most important for this purpose are benzol, phenylic alcohol, anthracene, and alizarine. The most important of these is, perhaps, anthracene; although it was the last to be discovered, and in the last three years it has effected a complete revolution in the dyeing trade. It is obtained in the distillation of coal tar as a solid substance, which is filtered out by means of coco-nut matting, or some such material. It yields a dye which is identical with that yielded by the madder root, so that now we can manufacture from our own resources a sufficiency of this dye material, whereas before we were dependent on imported madder from Turkey, Holland, and France.

The dye is known as alizarine, and is used for dyeing calico, and also woollen and silks, the former requiring a much longer space of time than the latter. In dyeing calico a fixing material, or "mordant," has to be applied, the two principal mordants employed being oxide of iron and alumina. The colour produced varies according to the mordant employed, and it is this great variation of colours which can thus be obtained in one and the same bath which renders alizarine so very valuable as a dyeing agent. Thus, with alumina you get a scarlet or a light pink, with iron you get a purple, with a mixture of alumina and iron you get a chocolate, while if you use much of the iron you get a purple so intense as to appear almost black—all these are perfectly "fast" colours.

The colours used for wool and silk are derived principally from that compound called benzol, which consists of carbon and hydrogen. By acting on benzol with nitric acid you get nitrobenzol, and by further treatment the latter yields aniline. This aniline requires to be brought in contact with an oxidising agent to produce colour. A single drop of aniline in a jar of water containing chloride of lime produces an intense colouration. This colour, however, is fugitive, and was long known, but it was not till Mr. Perkin thought of oxidising by means of bi-chromate of potash that a permanent colour was obtained, and to this colour the term mauve is commonly given. Magenta was discovered soon after mauve, and its manufacture has been brought to great perfection, especially in this country. It can be made by a number of different processes, but it is now made from the aniline almost exclusively by the action of arsenic acid. It can very readily be produced by heating aniline with corrosive sublimate. The manufacture of these colours from our native coal has made us rather colour exporting than importing people; and, as regards alizarine, we are now entirely independent of vegetation, and a good deal of indigo is also now produced in a similar way.

When aniline purple was first prepared it was for a length of time sold at seven times the price of pure silver. A cake of it 69 ozs. in weight will dye of a deep tint 1428 lbs. of wool or silk, equal to the wool obtained from 250 sheep. From 30 cwts. of coal 365 lbs. of tar are obtained, which furnishes 18 lbs. of naphtha, containing 6 lbs. of benzol; from this 6 lbs. of benzol (the starting point of mauve and magenta) 5 lbs. of aniline are produced, from which, again, 1 lb. of mauve or magenta can be obtained, sufficient to dye 560 lbs. of silk, or 990 lbs. of wool. In other words, 4 lbs. of coal will yield enough benzol (aniline itself is present in coal tar, but in too small quantities to be practically separated) to produce magenta sufficient to dye 1 lb. of wool. [The lecture was abundantly and beautifully illustrated by actual dyeing processes, &c., as well as by numerous dyed articles.]

ties to be practically separated) to produce magenta sufficient to dye 1 lb. of wool. [The lecture was abundantly and beautifully illustrated by actual dyeing processes, &c., as well as by numerous dyed articles.]

The lecturer then concluded by remarking that we had rapidly travelled through the history of coal; we had seen it start into existence in early ages through the sun's force; buried in the earth its tremendous powers lay dormant, till in the present day we have taken it from its prison and made it yield up its force. Treated in one way it shows itself as light, in another way as heat, in a third as mechanical force, and in a fourth as colour; and he thought his audience would endorse his opening statement that coal was one of the most remarkable substances in nature. A most enthusiastic vote of thanks to the lecturer closed the proceedings.

*** * LECTURES FOR PRACTICAL MINERS.**—Immediately on the completion of the reports of the Mining School Lectures, a series of careful reports, specially prepared for the *Mining Journal*, from Notes taken by Mr. J. CLARK JEFFERSON, A.R.S.M., Whitworth Scholar, and formerly Student of the Clausthal Mining School, of the Lectures there delivered, will be given. The series are very complete, and will be highly valuable for the sound technical matter which they contain.

GEOLOGICAL SOCIETY OF LONDON.

Jan. 10: Prof. P. MARTIN DUNCAN, M.B., F.R.S. (President), in the chair.

Frederick Tendon, Kidbrook-terrace, Blackheath, and David Thomas, Glanrafon House, Rhymney, were elected Fellows, and Dr. J. F. Brandt, of St. Petersburg; Dr. C. W. Gimbel, of Munich; and Prof. Eduard Suess, of Vienna, foreign members of the society. —James Durham, Wingate-place, Newport, Fife; Herbert William Harrison, Forester Cottage, Derby; William Hutchinson, Temple-street, Wolverhampton; H. M. Klaassen, Chepstow-road, Croydon; Alfred G. Lock, C.E., of Roseland, Millbrook, Southampton, and Mostyn-road, Brixton; Graeme Ogilvie, B.A., Sizewell House, Leiston, Suffolk; Joseph William Spencer, B.A.Sc., mining engineer, Montreal, Canada; and Griffin W. Vyse, B.A., Assoc. Inst. C.E., Executive Engineer, Public Works Department, Government of India, Multan, Punjab, were proposed as Fellows of the society. —George Barrow, of Her Majesty's Geological Survey of England and Wales, Jermyn-street; William Heerlein Lindley, civil engineer, Frankfort-on-the-Maine; and Joseph Samuel Martin, one of Her Majesty's Inspectors of Mines, Park Villas, Prestwich, Manchester, will be balloted for as Fellows of the Society. —A special general meeting was held, at which Mr. R. Etheridge, F.R.S., was elected Vice-President, in the room of Mr. J. W. Hulke, F.R.S.

1.—"On Gigantic Land Tortoises and a Small Freshwater Species from the Ossaferous Caverns of Malta, together with a list of the Fossil Fauna, and a note on Chelonian Remains from the Rock Cavities of Gibraltar." By A. Leith Adams, M.B., F.R.S., F.G.S., Professor of Zoology in the Royal College of Science, Dublin.

2.—"On the Corallian Rocks of England." By the Rev. J. F. Blake, M.A., F.G.S., and W. H. Hadleston, M.A., F.G.S.

THE MINERAL AND INDUSTRIAL PROGRESS OF NEW SOUTH WALES.

Few subjects can be more interesting to the true Englishmen than the record of uninterrupted successes in connection with the progressive development of a British colony, and when the history is so written as to show that the healthy progress made has been largely assisted by the natural resources of the region in which the colony has been planted, the publication of the facts is likely to prove as advantageous to the colonists as it is interesting to their friends and fellow subjects in the Mother Country. In connection with the steps taken by the Australian colonies to have their products represented at the recent Centennial Exhibition, a careful and exhaustive essay was prepared by Mr. G. H. Reid, and has now been issued as a handsome volume. He regards the Centennial as one of the signs of the times. For the first time a great commonwealth, in seeking to commemorate the achievements of her arms, has risen above feelings and bitter memories, inviting all nations to a congress of the arts of peace, and her former opponent has been foremost in promoting the success of the undertaking. The cordial way in which Great Britain has united with America in a jubilee over the events of 1776 is, let us hope, the initial of a new and bright page of history. It is, he continues, especially pleasing to Australians, whose loyalty to the one admits of fraternal regard for the other, and the harmony which has prevailed in the "city of brotherly love" between the assembled representatives of all communities speaking the English language encourages the idea of an alliance that would consolidate the power of the Anglo-Saxon race, and at the same time diffuse more freely amongst mankind the benefits of its vigorous civilisation.

In claiming for Australia a progress eclipsing previous examples, Mr. Reid certainly does not claim too much. Not three generations ago its coast of nearly 8000 miles was the frontier of a barbarism that had never been disturbed by a settlement of the white man. Within 40 years the colony is, with the concurrence of the Imperial Government, has fringed the Australian continent with infant States ready to exercise the powers of elaborate political systems, and sustaining over their vast territories forms of government, which blend the freest principles of the American with the most venerable safeguards of the British Constitution. If proofs of material progress are demanded, the Australian can point to a population which rose in 30 years from 214,000 to 2,000,000 souls, or 834 per cent., whilst during the same period the population of Canada and the United States increased by 690 and 126 per cent. They can point to a trade which rose in the same generation from less than 6,000,000, to 63,000,000, or 950 per cent., whilst the wonderful increase in British trade was only 400 per cent., that of the United States 385 per cent., and that of Canada about 650 per cent.; and if told Australian progress has seen its best days, they can reply that the trade of Australasia rose from 63,000,000, in 1871 to 87,000,000, in 1874, an increase of 38 per cent. in three years. The annual revenues of the several Governments approach 14,000,000, and as showing the importance of the Australian trade to the English people, Mr. Reid mentions that the value of the exports from the United Kingdom to Australasia in 1871 was 2,807,356, and in 1874 it was 10,951,992. In other words, the Australian markets for British industry and commerce have been enlarged in 30 years by over 250 per cent. These facts, he says, will do more to convince timid vestrymen in England of the real and prospective value of the Colonial Empire than an eulogy of the British pluck, sagacity, and enterprise to which they owe it. Until 1851 the new Great Colony of Victoria formed part of New South Wales and Queensland, another splendid province was detached in 1859, yet New South Wales is still of ample dimensions, as it covers a superficial area of 323,437 square miles; that is to say, it is still as extensive as the German Empire and Italy combined, or as France and the United Kingdom.

Admirable in pastoral and varied in agricultural resources, New South Wales also possesses a world of mineral wealth, which assures to her a great industrial future, but as the mineral resources of the Colony are kept so constantly before the readers of the *Mining Journal* a brief reference to them here will suffice. Nothing Mr. Reid remarks could better show the richness of our mineral resources than the multitude of discoveries made by unscientific persons, and in New South Wales the range of industry above ground is so wide, and its rewards so easily obtained, that it is not surprising that the mines have not yet reached far into the dark bowels of the earth. The first annual report of the Department of Mines shows that the average yield of gold per ton of quartz crushed in New South Wales during the year 1875 was 1 oz. 4 dwts. 4 grs., and it estimated that nearly 22 per cent. of the gold is carried off in the waste, owing to the absence of the necessary machinery for treating tailings. Coal is the most abundant of our minerals. For hundreds of miles the coast districts may be said to be one vast coalfield. The upper coal measures possess no less than 16 seams near Newcastle, the leading coal port of the Colony. The seam worked there at present is from 8 to 10 feet thick, and in the western district the same measures contain at least 11 seams, the lowest of which 10 feet thick crops out near the railway line. The presence of payable deposits of tin was long ago predicted by the Rev. W. B. Clarke, but not until two or three years ago did the search for tin become a business. The value of the tin raised in New South Wales was 47,708, in 1872, increasing to 334,436, in 1873, to 484,322, in 1874, and to 561,311, in 1875; the returns for 1876 are, of course, not yet available. The New South Wales iron manufactured by the Fitzroy Company is acknowledged to be equal to the best English, and that produced by the Fitzroy Company has likewise been tested and declared to stand favourable comparison with the best ever imported. Kerosene shale is plentifully distributed. The known area of this mineral is 650 square miles, and there are three mines already at work. Of silver, 28,123 ozs. were obtained in 1874, which is equal to nearly two-thirds the production of Great Britain. Antimony is met with in various localities. In 1875 the production was 142 tons of regulus, valued at 5000. Cinnabar has been found near Rylstone, fire clays exist in the coalfields, and limestone is frequent in the older geological areas. The gems of New South Wales form a varied collection. The most prominent are diamonds, found over an area of 500 square miles; oriental rubies, emeralds, topazes, and sapphires, besides common and less valuable kinds.

Throughout the essay evidence is given of an enormous amount of labour and research having been brought to bear upon it, and the value of the information collected is almost inestimable. It will enable anyone interested to satisfy himself upon any given point connected with the progress of the Colony, and will be exceedingly useful to capitalists in showing them that there is in New South Wales a vast field for enterprise, and at the same time affording

"An Essay on New South Wales, the Mother Colony of the Australias." By G. H. REID, Hon. Member of the Golden Club. Sydney: T. Richards, Government Printer. London and New York: Trübner and Co.

them some guide as to what class of business is likely to prove most remunerative.

PORTABLE STEAM-ENGINES.

A useful and interesting treatise on the portable steam-engine has just been written by Mr. John Head, with a view of giving tending purchasers some more detailed and scientific information than that furnished in trade catalogues, and there can be no doubt that after carefully reading the book the non-professional man will be in a much better position to judge as to whether a given engine is or is not adapted to the particular purpose for which he may require it. The author very naturally remarks that having, as partner in the firm of Ransomes, Sims, and Head, been for many years extensively occupied in the production of portable steam-engines, the experience gained of the requirements of persons about to purchase has led him to believe that a description of this useful class of machinery, and an explanation of the general construction in rather more technical form than has hitherto been attempted might be serviceable at home and abroad.

With regard to the more extended application of steam-engines with locomotive boilers, Mr. Head explains that since the introduction of railways—which have not only necessitated a large demand for steam power in their construction, but have opened up many districts which, within the last 30 years, had been inaccessible for heavy pieces of machinery—the demand for steam power can be readily and transported from place to place has increased to a great extent. Hence the attention of manufacturers was turned to the construction of a light steam engine, mounted on four wheels, which has received the name of the "Portable Engine," in contradistinction to the fixed engine with separate boiler, which, though similar in details, cannot be easily moved, and requires foundations in masonry before the boiler and engine can be set to work. The locality where a steam engine is fixed must always exercise an important influence in the calculations of users of steam-power. In largely populated districts markets of all sorts can be brought by rail or canal, and stored in the immediate vicinity, and although wood and coal always find a permanent market in these localities yet the price of both fluctuates in proportion to the demand, and their prime cost is always much higher than when purchased in the forest or at the pit's mouth. It is, therefore, necessary that the steam-engine, for use in towns and other places where fuel is expensive, should be constructed so as to consume the minimum amount of fuel, even at an enhanced prime cost.

But the class of engine to which Mr. Head directs especial attention is that utilising as fuel almost any description of refuse that may be indigenous to the locality, and easily procured at a moderate cost. As the use of steam-power is extended to outlying districts where wood was scarce and expensive, and coal obtainable as a luxury, it became necessary to devise a method of heating boilers with other fuel and vegetable substances found universally in every country, naturally attracted the attention of engineers. In connection with this subject Mr. Head, in conjunction with Mr. Schenloth, a Russian engineer, made a number of experiments on the combustion of straw and other vegetable products in tubular boilers, which have successfully resulted in the perfection of a steam-boiler which will enable every user of steam-power to burn straw, dry grass, brushwood, stalks, and other similar substances. For the last 15 to 20 years the portable semi-fixed steam-engine has been used in many parts of the world, for thrashing, grinding, sawing, pumping, and many other purposes, but in all districts where distance from rail or water carriage, or where coal and wood were not found in quantity in the locality, the cost of fuel has always formed a serious item, and in many cases has prevented the employment of steam-power altogether.

The absence of fire wood, and heavy cost of coal on the Steppes of Hungary and South Russia appears to have almost excluded the use of steam in those districts. Mr. Head remarks that until the application of straw and other vegetable substances as fuel became known the only substance which could be burnt in steam boilers was dried sheep dung. The want of steam power is equally felt in all agricultural districts besides those already mentioned. In India the dried husks of fibrous plants, the scrub or brushwood, and the stalks of the cotton plant supply an excellent substitute for coal in boilers properly constructed. In Egypt the cotton plants are pulled up after having attained a certain growth, and the stalks, which are about ½ in. in diameter and 4 to 5 ft. in length, contain all the calorific properties of good wood, and will burn perfectly well if properly inserted into the furnace. In the large wheat growing districts of the Marommas and the Foggia, the west and south of Italy, wood and coal are very scarce, and as the grain requires to be thrashed very shortly after harvest, on account of the nature of the climate, the farmer would gladly avail himself of steam-power provided he could use his straw, which he has always at hand and in superfluous abundance. In South America, New Zealand, and the extensive prairies of the River Plate, Chile, and Mexico, the universal demand of the farmers is for steam machinery which can be worked with indigenous fuel; and the time may come ere long when the land in these countries shall be ploughed, the crops harvested and thrashed, and the grain ground into flour by steam engines fed with the straw, brushwood, or vegetable refuse grown on the estate. But the great recommendation of Mr. Head and Schenloth's engine appears to be that with slight changes in the arrangement of the fire-bars they will burn not only coal, wood, and the various vegetable substances already enumerated, but also peat of all kinds, sawdust, chips, and megass, the refuse of the sugarcane, and in fact almost any vegetable refuse within reach. It has been proved by experiment that from 3 to 350 lbs. of straw, brushwood, or cotton stalks equal 1 lb. of coal in calorific effect, and it follows that in countries where coal is cheap and straw valuable it is not always advantageous to make use of vegetable fuel. In other districts, however, where coal is worth about 3s. per ton, and wood is scarce and expensive, but where vegetable refuse is almost valueless, the gain to the user of steam power by adopting this invention is very great. There can be no question that the adoption of this class of engine would permit of the introduction of steam-power in almost innumerable localities from which it has hitherto been excluded, and as all the fittings attached to it are of the best and most approved form it may be hoped that its use will be widely extended.

"A Few Notes on the Portable Steam-Engine, with an Account of its Construction and General Adaptation." By JOHN HEAD, A.I.C.E. (Ransomes, Sims and Head). London: Spon, Charing Cross.

MECHANICAL THEORY OF HEAT.—The special value of the "Treatise on the Mechanical Theory of Heat, and its Applications to the Steam-Engine," &c., by Prof. R. S. McCULLOCH, of the Washington and Lee University (recently published by Mr. D. Van Nostrand, of New York), has been said by competent authorities to lie in its peculiar adaptability to the needs of the scientific student. It is a systematic development of the science of thermo-dynamics from the fundamental equation of energy. The first chapter gives a brief, but admirably clear, history of the science. The next three chapters are devoted to a masterly resume of theoretical dynamics, which will be found of the greatest service, even to those who have familiarised themselves with the subject in more extended works. The remaining chapters of the first part are devoted to general laws, airs and vapours, internal energy, air-engines, and thermal laws. Under these various heads the principles of the science of thermo-dynamics are developed in a most thorough and systematic manner. The second part of the work is a discussion of the application of thermal laws. The two principal chapters treat of "Steam and other Vapours," and "Steam Engines: the Effects and Improvements"; and in the treatment of this part the Professor displays the same power of analysis as in the purely scientific portion. The work will be more fully referred to in a future Journal.

COATING METALS.—In the process of coating iron or other metal sheets with tin or other metal Mr. E. MOREWOOD, of Llanelli, employs what he calls a half-round finishing flux pot with machinery and apparatus so fitted that plates which have been coated with melted metal after being prepared by tallow, oil, or grease flux may be finished, improved, or rectified whilst making a somewhat semi-circular travel under the hot grease, tallow or oil contained therein by passing between rollers coated with melted metal. At the bottom of this finishing flux pot is an opening by which any molten metal or scum, or dirt, or settlings from the grease descend from the said finishing flux pot into a receptacle which is set below, so that the rollers, some of which work near the bottom of the finishing flux pot, may, whilst revolving be as far as possible out of the way of disturbing dirt, scum, or settlings, or of planting any on the plates which pass between them, and from the receptacle the metal, grease, and dirt can be readily removed. On the exit side of this finishing flux pot or vessel he causes the plates to pass up between rollers working in troughs containing melted metal, so that they may be supplied with fresh coating metal whilst passing between the rollers which revolve in contact with the coating metal contained in such troughs, or such troughs may contain fresh tallow, oil, or greasy matter of the quality and condition best suited to finish coat plates. He prefers to use such half-round finishing flux pot in combination with a half-round tinning pot; and the plates to be coated are passed into the melted coating metal contained in such half-round tinning pot through grease contained in a special flux box; and on the exit side of such half-round tinning pot he causes the plates to pass out between rollers revolving in troughs. He also finds it desirable to use an additional pair of rollers close to the surface of the melted metal on the exit side of the tinning pot, and under or between the legs of the said trough. Between the half-round tinning pot and the finishing flux pot he sometimes places a dipping pot containing melted coating metal of good quality, and into this dipping pot he occasionally dips the plates as they pass from the said half-round tinning pot into the said finishing flux pot. The arrangement of an opening and receptacle for scum, dirt, or settlings may be adapted to the grease flux on the exit side of a pot, in which the plates in process of coating pass up from the coating melted metal to and through the finishing flux before coming in contact with the air.

MORE CURES OF ASTHMA AND COUGHS BY DR. LOCOCK'S PULMONIC WAFERS.—Lymington, Cheshire.—In allaying any irritation of the chest or lungs, checking all disposition to coughing, and promoting that inestimable boon—comfortable night's refreshing sleep—they certainly stand unrivalled. J. H. Evans, Druggist. In asthma, consumption, bronchitis, coughs, colds, rheumatism, and all hysterical and nervous pains, instant relief is given. They taste pleasantly. Sold by all druggists at 1s. 1½d. per box.

THE DIVIDEND MINES OF 1876.

CONTRIBUTED BY Mr. EDWARD ASHMEAD, LONDON MINE AGENT AND ACCOUNTANT, 62, CORNHILL, LONDON.

PARTICULARS OF THE BRITISH METALLIFEROUS MINES WORKED BY PUBLIC COMPANIES WHICH HAVE PAID DIVIDENDS IN THE YEAR 1876.

Title of Mining Company.	Situation of Mine.	Year Company commenced.	Ore sold in 1876.			Rate of dues.	Existing allotted Capital.			Total amount divided in dividends.	Dividends declared in 1876.	
			Description of ore.	Number of tons.	Amount.		Shares.	Paid.	Total.		Per share.	Total.
					£ s. d.			£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1. Alderley Edge, Limited	Alderley Edge, Cheshire ...	1859	Copper	—	—	1-10th	1,500	10 0 0	15,000 0 0	18,875	0 5 0	375 0 0
2. Bryn Alyn, Limited	Denbighshire	1875	Lead...	14	210 0 0	£1 per ton	500	10 0 0	5,000 0 0	198	0 7 0	* 198 2 0
							566	8 0 0	4,428 0 0			
3. Dolcoath, Cost-book	Camborne, Cornwall	1799	Copper	39	157 9 6	1-20th	4,296	10 10 8	45,252 2 10	475,510	1 12 6	6,981 0 0
			Tin ...	1180	53,327 6 5							
			Arsenic	56	230 19 10							
4. East Darren, Limited	Cardiganshire	1858	Lead...	460	8,504 0 0	1-14th	300	32 0 0	9,600 0 0	70,650	4 0 0	1,200 0 0
5. East Pool, Cost-book	Illogan, Cornwall... ..	—	Copper†	1876	5,725 12 0	—	6,400	0 9 9	3,120 0 0	95,440	0 15 6	4,960 0 0
6. Glasgow Caradon Consolidated, Lim.	Cornwall	1860	Copper	3012	14,729 2 8	1-18th	29,980	1 0 0	29,980 0 0	22,989	0 3 0	5,374 3 3
							7,797	0 15 0	5,847 0 0		0 2 3	
7. Great Dyliffe Lead, Limited	Montgomery	1876	Lead...	970	14,431 15 0	1-14th	15,000	4 0 0	60,000 0 0	1,875	0 2 6	1,875 0 0
			Copper	36	245 4 4							
			Copper	120	483 0 0	1-20th						
8. Great Laxey, Limited	Laxey Glen, Isle of Man ...	1863	Lead...	2400	56,047 10 0	1-8th	15,000	4 0 0	60,000 0 0	309,750	2 0 0	30,000 0 0
			Blende†	7299	25,668 0 0	1-20th						
							615	5 18 6	3,643 17 6	—	0 1 6	4 2 6
9. Great Retallack, Cost-book	Perranzabuloe, Cornwall ...	—	Lead...	689	1,972 0 0	1-15th	18,000	2 0 0	36,000 0 0	7,200	0 5 0	4,500 0 0
10. Grogwinion Lead, Limited...	Cardiganshire	1872	Copper	1080	16,103 15 8	1-15th	9,830	2 2 0	20,643 0 0	6,758	0 5 0	2,457 10 0
11. Gunnislake, Cost-book... ..	Calstock, Cornwall	1858	Copper	1781	10,364 0 0	1-20th	2,800	25 0 0	70,000 0 0	102,144	1 5 0	3,500 0 0
12. Isle of Man, Limited	Foxdale, Isle of Man	1856	Lead...	1593	34,873 1 6	1-12th	400	18 15 0	7,500 0 0	235,400	8 0 0	3,200 0 0
13. Lisburne, Limited... ..	Cardiganshire	1834	Lead...	2074	31,516 17 6	1-12th	9,000	—	35,790 0 0	70,725	0 2 0	900 0 0
14. Marke Valley, Cost-book	Linkinhorne, Cornwall ...	1839	Copper	4560	16,238 5 5	1-36th						
			Lead...	3081	45,021 2 0	—	9,000	5 0 0	45,000 0 0	597,669	1 8 0	12,600 0 0
15. Minera, Limited	Near Wrexham, Denbighshire	1850	Blende	2102	11,333 3 6	—						
							10,289	2 10 0	25,722 10 0	13,653	0 5 0	2,572 5 0
16. North Hendre Lead, Limited	Near Mold, Flint	1870	Lead...	540	8,112 5 0	1-12th	18,000	1 0 0	18,000 0 0	11,693	0 1 3	1,125 0 0
17. Prince Patrick Lead, Limited	Halkin, Flint	1872	Lead...	207	3,118 0 0	15s. per ton						
			Lead...	2321	34,869 6 0	1-12th	12,000	7 10 0	90,000 0 0	79,800	1 5 6	15,300 0 0
18. Roman Gravels, Limited	Near Minsterley, Shropshire.	1870	Blende	40	130 0 0							
			Copper	6261	43,110 19 2	1-18th	512	1 5 0	640 0 0	374,272	7 0 0	3,584 0 0
19. South Caradon, Cost-book	St. Cleer, Cornwall	1835	Tin ...	588	26,562 15 6	1-24th	6,123	6 5 6	38,421 16 6	12,856	0 9 6	2,908 8 6
20. South Condurrow, Cost-book	Camborne, Cornwall	1865	Lead...	1500	22,617 10 0	£1 per ton	12,000	6 0 0	72,000 0 0	58,200	1 0 0	12,000 0 0
21. Tankerville, Limited	Near Minsterley, Shropshire.	1870	Tin ...	794	33,936 12 5	1-26th	6,000	9 0 0	54,000 0 0	258,000	1 0 0	6,000 0 0
22. Tincroft, Cost-book	Redruth, Cornwall	1836	Copper	101	342 13 3							
			Lead...	6850	102,905 0 0	1-14th	15,000	4 5 0	63,750 0 0	308,625	3 6 0	49,500 0 0
23. Van, Limited... ..	Montgomery	1869	Blende	2460	9,638 7 6							
			Copper	14	33 9 6	1-20th	3,000	12 10 0	37,500 0 0	163,500	1 0 0	3,000 0 0
24. West Chiverton, Cost-book... ..	Near Truro, Cornwall	1863	Lead...	1645	20,545 9 5	1-20th						
			Blende	3330	9,898 9 10							
			Tin ...	155	6,766 7 2	1-20th	1,730	0 12 0	1,038 0 0	878	0 10 0	878 5 0
25. West Poldice	Gwennap, Cornwall	1873	Copper	326	2,033 16 3							
			Copper	3641	21,032 11 2	1-20th	512	95 10 0	48,896 0 0	9,088	6 15 0	3,456 0 0
26. West Wheal Tolgus, Cost-book	Illogan, Cornwall... ..	1860	Lead...	—	—	1-16th	12,000	3 0 0	36,000 0 0	3,048	0 6 0	** 3,048 11 6
27. West Wye Valley Lead, Limited	Montgomery	1875	Tin ...	445	20,392 6 7	1-20th	1,024	18 0 0	18,432 0 0	8,704	7 10 0	7,680 0 0
28. Wheal Eliza Consols, Cost-book... ..	St. Austell, Cornwall	1861	Lead...	500	7,148 0 0	1-16th	10,000	3 0 0	30,000 0 0	3,413	0 4 6	2,250 0 0
29. Wye Valley Lead, Limited.. ..	Montgomery	1874	Blende	40	50 0 0							
					£720,431 4 1				£991,204 6 10	£3,320,913		

* On 566 shares.

† East Pool tin returns not yet to hand.

‡ Great Laxey blende is from August, 1875, to August, 1876.

§ Registered as a Limited Company in 1864.

|| 5s. on 1783 shares, and 5s. on 1730 shares.

** Guaranteed dividend not paid on all the shares.

In 1876, 17 Lead and Blende Mines paid	£145,915 1 0
and 12 Tin and Copper Mines	45,554 6 9
Total	£191,469 7 9
Dividend paid in 1876 by 29 companies	£191,469 7 9
" " 1875 " 34 "	157,480 12 2
Increase for 1876	£ 33,988 15 7

The Mining Company of Ireland resumed dividends in 1876, but not deriving its profits wholly from the working of its metalliferous mines is not included in the above list. The company was formed about the year 1824, and is in 20,000 shares, £7 paid. It has divided £463,050. The dividends in 1876 were £5600.

RESERVE FUNDS.—Two of the above companies have reserve funds—viz., Minera, £9000, and Great Laxey, £5600.

The ores sold by the above companies averaged—	
Lead, 25,235 tons, about £16 2 6 per ton	£406,023 12 1
Blende, 15,960 "	3 13 6
Tin, 3,162 "	44 10 0
Copper, 21,767 "	5 6 0
Sundries	230 19 10
Total	£720,431 4 1

PARTICULARS OF THE FOREIGN AND METALLIFEROUS MINES WORKED BY BRITISH PUBLIC COMPANIES WHICH HAVE PAID DIVIDENDS IN THE YEAR 1876.

Title of Mining Company.	Situation of Mine.	Year Company commenced.	Ores worked for.	Existing allotted Capital.			Debtures.	Reserve Fund.	Total amount divided in dividends.	Dividends declared in 1876.	
				Shares.	Paid.	Total.				Per share.	Total.
1. Alamillos, Limited	Near Linares, Spain	1863	Lead	35,000	2 0 0	70,000	—	4,086	63,437	0 4 0	7,000 0 0
2. Almada and Tinto Consolidated, Lim.	Promontorio, Sonora, Mexico	1870	Silver	130,000	1 0 0	130,000	10,600	1,488	36,208	0 1 0	6,500 0 0
3. Cape Copper, Limited	400 miles N. W. of Cape Town	1863	Copper	20,000	7 0 0	140,000	—	20,000	505,625	4 0 0	80,000 0 0
4. Chicago Silver, Limited	Utah Territory, United States	1873	Silver and Lead	13,225	10 0 0	132,250	—	—	31,380	0 16 0	10,580 0 0
5. Copiapo, Limited	Copiapo, Chili	1830	Silver and Copper	10,000	16 15 0	167,500	—	—	—	0 2 6	1,250 0 0
6. Eberhardt and Aurora, Limited	Hamilton, Nevada, United States	1870	Silver	27,528	10 0 0	275,280	—	20,500	34,410	0 5 0	6,882 0 0
7. Fortuna, Limited	Near Linares, Spain	1854	Lead	25,000	2 0 0	50,000	—	6,637	153,125	0 14 8	18,333 6 8
8. Frontino and Bolivia (S. A.) Gold, Lim.	United States of Columbia	1864	Gold	54,678	2 0 0	109,356	—	—	2,733	0 1 0	2,733 18 0
9. Libiola Copper, Limited	Genoa, Italy	1867	Copper	360	10 0 0	3,600	—	—	52,200	3 0 0	1,080 0 0
10. Linares Lead, Limited	Near Linares, Spain	1852	Lead	15,000	3 0 0	45,000	—	4,140	232,850	0 19 0	14,250 0 0
11. New Zealand Manganese, Limited	New Zealand	1874	Manganese	60,000	1 0 0	60,000	7,716	—	7,000	—	3,500 0 0
12. Richmond Consolidated, Limited	Nevada, United States	1871	Gold, Silver, & Lead	54,000	5 0 0	270,000	37,800	5,583	180,768	0 15 0	40,498 4 0
13. Santa Barbara Gold, Limited	Minas Geraes, Brazil	1868	Gold	40,000	0 10 0	20,000	—	500	5,000	0 2 6	5,000 0 0
14. Sierra Buttes Gold, Limited	Sierra County, California	1870	Gold	122,500	2 0 0	245,000	—	5,000	164,870	0 4 0	20,958 0 0
15. ditto (Plumas Eureka)	Plumas County, California	1872	Gold	140,625	2 0 0	281,250	—	—	56,250	0 4 0	28,125 0 0
16. St. John del Rey, Limited	Minas Geraes, Brazil	*1830	Gold, 83 per cent. Silver, 17 per cent.	Stock	All	253,000	—	38,639	1,086,601	45 p. cent.	113,310 0 0
17. Sweetland Creek Gold, Limited	California	1870	Gold	15,000	4 0 0	60,000	—	2,198	51,000	0 4 0	3,000 0 0
18. Victoria (London), Limited	Victoria, Australia	1860	Gold	25,000	1 0 0	25,000	—	—	18,405	0 1 8	3,750 0 0
19. Western Andes, Limited	United States of Columbia	1872	Gold and Silver	15,000	5 0 0	75,000	—	5,993	34,728	0 12 3	9,187 10 0
20. West Prussian, Limited	Rhenish Prussia	1875	Silver-lead & blende	14,000	10 0 0	140,000	—	—	10,273	0 10 4	2,859 18 6
				5,500	8 0 0	44,000	—	—			
				1,500	10 0 0	15,000	—	—			
				£2,631,236							

* Registered as a Limited Company in 1869.

† Ordinary.

‡ Preference.

§ Deferred.

|| Part of shares deferred up to date of last dividend did not receive the full 4s.

** Dividend on the preference shares only.

In addition to the above, Dividends have been paid in 1876 by the following Companies, often classed among Mining Companies, but not deriving their income from Metalliferous Mining, viz.:

Australian Mining Company, Limited, from land, &c.	Dividing £ 2,289, on a paid-up capital of £128,205
English and Australian Copper Company, Limited, as an ore smelting company, &c.	7,000
Scottish Australian Mining Company, Limited, principally from coal	22,750
Tharsis Sulphur and Copper Company, Limited, sulphur, chemical, and trading	202,500
	900,000

The latter company has since its commencement in 1866 returned £1,366,130 in dividends.

Mr. ASHMEAD takes this opportunity of thanking the Managers and Secretaries of the above Companies who so willingly afforded him the information necessary for the construction of the above Tables.

A RICH COPPER SMELTER.—It is said that Lord Beaconsfield's former house in Park-lane, London, has been taken by Mr. Charles Lambert, the other day, inherited something like a million of money from his father, the copper ore smelter.

Original Correspondence.

RICHMOND MINE.

Sir.—I have before me a circular published by a firm of brokers named Mansell and Co., and headed "Notice to clients only." Not being a client of theirs I am truly grateful to Mansell and Co. for the kindly interest they take in me and my affairs, leading them to expend time, ink, paper, and stamp on me. Of course they have an object in view. I have lived a good many years in this world, and have not found the people of it, more especially stockbrokers, as a rule, disinterested, like as Messrs. Mansell and Co. would lead me to believe they are.

On receipt of the circular I made some enquiries regarding this firm, W. Mansell and Co., and learned:—1. That, notwithstanding their signature, they have no *locus standi* in the Stock Exchange; indeed, the very fact of their issuing a circular such as this is sufficient evidence of this. 2. That Mr. Mansell was once on very friendly terms with the Chairman of the Richmond, but that, for reasons unnecessary to mention here, there no longer exists the same *entente cordiale* between them. 3. That in lieu of cultivating the friendship of the Chairman, Mr. Mansell allied himself with one of the greatest enemies of the Richmond—J. J. Corrigan—who, as stated in the circular, "until recently sat at the Richmond board as representative of the American Corporation," but who had no sooner become disconnected with the mine than he began fulminating all manner of deadly threats against it and all therewith connected, nor did he make any secret of his intentions, for he told persons with whom I am acquainted that his going to Eureka would result in no good to the Richmond. 4. That during his recent visit to the mines in Nevada Mr. Mansell visited the Richmond, and was rather put out when refused admittance to its depths; however, in the end Mr. Probert seems to have relented, and showed Mr. Mansell all over the workings, and at parting said to him—"Now you have seen the mine you can go home and write and say anything you like about it," or words to that effect.

Read in the light of these facts, the drift of Mr. M.'s circular is easily understood. It means injury to the mine and its shares, not philanthropy towards his dearly-loved clients. Poor souls! Moreover, anyone acquainted with the way in which the wires are being pulled in the San Francisco, Eureka, Glasgow, and London markets, is well aware of the "little game" being at present played by a certain firm of San Francisco, in concert with their Glasgow agents and certain others, both in London and the other side of the water; and instead of Mansell and Co. fully expecting that the threatened suit by the K. K. (which is perfectly baseless, and urged only for stock-jobbing purposes and with the object of annoying the Richmond Company) would have been amicably adjusted through the friendly offices of J. J. Corrigan, they must be well aware that the very reverse was to be expected.

The object of this little paragraph, which breathes of such innocence, is simply to blind those not acquainted with the game upon the board, and to lead them to believe that the "suit" must indeed be a very serious one if a friendly go-between such as J. J. Corrigan is about the very last person from whom such good service could be expected, and who has only got nominated deputy chairman to the K. K. since his return to Nevada, in order that he may damage our property as much as he possibly can, and in order that he may be a thorn in the side of his avowed enemy, Mr. Probert, and his late colleagues, the directors of the Richmond Mine.

The holders of Richmond shares may rest assured that notwithstanding all the attempts of interested parties to depreciate the value of the shares, they have a very splendid property in the Richmond, and they will only be cutting their own throats and playing the game of the "bears" and enemies of the mine if they believe the false rumours from time to time foisted upon them by tongue and by printed circulars such as the one under consideration, which could surely have been answered in a few hours, not several days by the chairman and his colleagues. A SHAREHOLDER.

[For remainder of Original Correspondence see this day's Supplement.]

WHEEL AGAR—SPECIAL REPORT.

Jan. 17.—The engine-shaft is sunk 4 fms. below the 195, at which point the men are engaged shooting down the north part, which is throwing open a magnificent hole—the width seen is about 12 ft.; no sign of any north wall. In the extreme north the hole is as valuable as seen here. The south part, for about 5 ft. wide, and length of shaft 14 ft., is worth about 425 per fathom; the north part is 7 ft. wide, and for length of shaft is worth about 135 per fathom downwards. The hole is made up of spar, mullie, spots of copper ore, and tin, the matrix of which is a 1 lb. desire to see for the growth of tin in large quantities. In the 195, east of shaft, a pair of men are engaged shooting down the north part of the hole, which is seen 15 ft. wide; no north wall, about 9 ft. of which, on the south part, is yielding standing work. The north part is 8 ft. wide, worth about 185 per cubic fathom. When convenient a level should be started east to enable you to sink a winze to follow down the shaft (say) 4 fms. east of shaft. If you adopt this course, as soon as the shaft is sunk for another level you will be prepared to sink from said winze without let or hindrance to the shaft. I notice in the back of the said level that there are some flat ribs of mullie making away north, and it appears that these ribs will most likely disturb the hole in going up and give place to granite. The north part may prove productive a few fathoms in going up—this will be proved as the ground is stopped. The hole in the upper levels, below the slaty rock, on entering the granite is split up so much that it is scarcely traversable, but as depth is attained the granite rock becomes more congenial and mullie. That the granite wears out of the vein, and gives place to spar and other material for tin, and that the outcrop of the great bunch now in the shaft will be found a little above the 195—such is my opinion. South Lode: The 195 is driven east nearly 10 fms.; the lode in the present end about 16 ft. wide, composed of mullie, spar, mullie, and tin, worth for the latter 60 per fathom, and likely to improve. The stopes now working on the said lode I do not think are leaving much profit. I recommend you to set them on tribute, when half of the profit shall now drawn to surface might be left underground, when I feel sure that the lode can be worked at a profit to the company. The new shaft should be pushed on by a full staff of men, in order to prepare to draw large quantities of stuff on an economical scale. Before the shaft reaches the bottom the mine will be well developed, and this shaft will, without doubt, be much required, even before you can get it prepared. A skip road is required at the engine shaft, which should be built and run once. The time has arrived when you can make a fair start for the mine to meet regular working expenses. You will require little more capital for skip road and laying out dressing floors. The mine at the bottom is looking splendid, and from the appearance of the lode I believe that you are down on a lode that will prove lasting and highly profitable for very many years to come. T. HOBBS.

PENSTRUTHAL CONSOLS TIN AND COPPER MINES—SPECIAL REPORT.

Jan. 17.—The position of the company's grant is so well known that detailed reference thereon would be both unnecessary and superfluous, hence I proceed at once to my report which will chiefly apply to the recently discovered copper lode, and which, in my opinion, is being practically developed, and is rapidly opening out an extensive and valuable deposit of copper ore. I may, however, just observe, *en passant*, that the situation of the property is unique in its favourable geological regards to prosperous mines, and its history for riches on the only lode worked by former adventurers. Trevelyan and the old and new Butlers are similarly situated as to the junction of the granite and the killas, and are each and all calculated for their rapid and substantial development and products. These four mines form, in fact, one group, and have at various times been famous for their exceptional wealth and the profits resulting from its extraction. The ores are rich in quality, ripe in character, and are easily prepared for market, hence costs of dressing are comparatively small when compared with those of average mining. The company's sett abounds in highly crystallised and mineral lodes, both for copper and tin, which traverse at various angles and form numerous intersections, and the rock is most congenial for the formation and yield of large quantities of copper ores.

The copper lode dropped into the shaft just 2 or 3 fms. under the 34 fm. level, and a considerable section of it has been laid open, both in length and depth, so much so that I cannot but congratulate the proprietary on their prospects. The ore makes both east and west of the shaft, but the great bulk of the deposit evidently abounds eastward in the direction of the cross-courses, and towards the junction of the granite and killas. The 45 fm. level has been driven east 47 fms. through a compact lode, with copper ore in considerable lengths throughout the whole distance, and even continuing in places to the 34 fm. level, thence upwards in virgin ground to the adit, from which point the lode is wholly unwrought to surface. The 58 fm. level is extended east 35 fms., and the shoots of ore existing in the level above are found more compact and settled, whilst the unproductive patches are shortened, and show strong indications of disappearing altogether in the next level. A winze has been sunk in continuous ore from the 45 to the 58, which is important in respect to ventilation, facility of working, and proving the value and character of the vein. This piece of ground, for 20 fms. in height and for 40 fms. in length, is now available for stoping or tribute, and is being worked at an average of 6s. 8d. in 12, and contains large quantities of rich copper ores, black and grey preponderating, which show that the top only of the deposit is as yet reached.

A winze is started below the 58, and in advance of the 74 and east; the lode here is worth (say) 250 per fathom for copper ore. The shaft is sunk to the 74, and ends as being driven both east and west, and it is probable that the ore now being wrought at the 45 and 58, black and grey ores, will soon change into sulphuretted or yellow copper ore at this, or, at the latest, the next level. This is in accordance with analogy throughout the district, and in my opinion there cannot be a doubt

that this will be the case on this lode, and which alone is required to establish the Penstruthal Mine equal to the best that the district ever contained. There is a feature of great importance in the character of the lode—the absence of water in all the upper workings, thus proving the porous nature of the vein. The water springs wholly from the bottom, and the shaft has drained the whole of the mine up to the cross-course, so that tributaries are working perfectly dry. The tin ground improves also as depth is attained, but though the mineral may prove a good auxiliary, and even an important element, yet the yield of copper ore is the product that will establish the future greatness of the Penstruthal Mines. In concluding my remarks I beg to state that I have had 50 years experience in practical mining, and I have no hesitation in saying Penstruthal will prove a great and profitable mine, and that the shareholders will have an early and important prize, and I have never been more agreeably surprised throughout my long career than on my inspection of this mine. I estimate the copper ore ground laid open (say), 1200 fms., and I value it at (say) a money value of 10,000, to 12,000, which can be raised at 6s. 8d. in 12. This, however, is simply a mere fraction of the prospective money value of the property, as the elements of success are all imbedded in virgin ground eastward in connection with the chief cross-course of the district, and in contiguity with Trevelyan and Old and New Butlers made their great riches.—JOHN LEAN.

CATHEDRAL COPPER MINE (GWENNAP)—SPECIAL REPORT.

Jan. 18.—Having on the 30th ult. visited and carefully inspected the above-named mine—with the position of which I have from my childhood been acquainted—I was highly pleased with all that you have done, and are still doing, as well as with the state and prospects of the mine. As you are aware, it is situated at the north foot of the granite hill of Carnmarth, and in the centre of a rich mining district, is in close proximity to West Wheal Damal on the south, and to Granbier and St. Aubyn on the north, both of which mines have yielded an abundance of copper ore of rich quality, the principal vein of the former having maintained an almost continuous and uninterrupted course of ore of great magnitude and to a great depth for upwards of a mile in length. Cathedral was opened on a gossan-back oxide of iron lode, which has recently undergone what we have found to be the natural, and almost inevitable, change attending those of the rich copper mines of Cornwall, and which is noticed in those of the world in general—i.e., that the gossan has changed or given place to yellow copper ore—sulphuretted of copper. Above the 30 the lode seems to have yielded a considerable quantity of gossan ore—carbonate and oxide of copper, and for the length opened out it has been principally removed or worked away; but from the 30 to the 42 there has been opened out, and now standing almost entire, a piece of valuable ore ground, on which tribute pitches have, 40 fms. long and 10 fms. high in round numbers, 400 fathoms of copper ground, which is being worked at an average tribute of 8s. 6d. in 12.

The ends from the 30 downward are still in the gossan, and are of a most promising character, more particularly so that of the 42 east, which most strongly indicates an immediate improvement. The lode from the surface to the present bottom of the sump or engine shaft, and throughout the whole of the levels, maintains its width and strength, or, I should rather and more correctly say, that it increases in width with the attainment of depth. In the shaft itself it is about the width of shaft—say 4 ft. wide—composed of peach, spar, friable and yellow copper ore, of a present value of about 200 per fathom. The lode changed to sulphuretted of copper about 4 or 5 fms. above the present bottom. It is not so much my object to speak of the work done as it is to convey a general idea of the character of the lode, and of the position, present state, and prospects of the mine. From surface, then, the mine was opened on the gossan, which has undergone the regular gradation of changes found at shallow depths in the richest mines in the neighbourhood, the lode possessing all the characteristics that indicate richness below. Looking at these facts and features, it is my confident belief that you will soon have a profitable and a durable mine, in a large and strong lode of yellow copper ore. The important fact I must not forget to mention—that the lode now being developed in the mine is the same that in the adjoining mine—Old Wheal Jewell—yielded a profit of 400,000, and in no instance at the same depth did the lode in Old Wheal Jewell present better prospects than those of Cathedral of to-day.

JOHN LEAN.

THE IMPORTANCE OF SCIENTIFIC TRAINING.
THE UNIVERSITY OF NEW BRUNSWICK.

Opportunities almost daily present themselves for removing defects or introducing improvements in connection with every branch of industry—sometimes by modifying the processes in use, sometimes by varying the methods of manipulation commonly followed, and it is seldom without strict attention to the scientific principles involved that the necessary alterations can be either successfully or economically made. Well, then, may the authorities of the University of New Brunswick remark that "people in general fail fully to appreciate the importance of scientific method and the value of scientific training as an introduction to the life of even an ordinary man of business;" and in offering inducements for the largest possible number of students to give attention to technical subjects, by providing a very complete course of scientific teaching, they have certainly entitled themselves to the warmest thanks of the entire province, whilst the ample precautions taken to prevent a degree from the University being obtained by any student until he has proved himself well entitled to it will suffice to command for the B. Sc. and Ph. D. degrees the same amount of respect as has always attached to the degrees in laws and arts. With regard to the history of the University, it has been in existence as a teaching body since 1800, although it did not receive the Royal charter which conferred upon it the style and privileges of a university until 1828, before which date it was known as the College of New Brunswick, and the most satisfactory progress has been made since its re-organisation in the year 1860. The facilities for obtaining a high-class collegiate education upon easy terms are probably greater in the University of New Brunswick than in any other establishment in the Dominion of Canada, for in addition to an abundance of scholarships the cost of residing is so moderate that a County Scholarship being obtained, the frugal student can go through the full university course at a cost of only \$92.50 per annum. This small amount with the scholarships within his reach will provide him with the 40 weeks board and lodging, and the necessary text books, and suffice to cover the tuition fees, subscription to library and plate, fuel and light, washing, and gymnasium. Even those who are unsuccessful in gaining scholarships can go through the course for \$175 per annum, whilst the expenditure for dress and pocket-money need not be higher at the University than away from it. The Act establishing the University provides that there shall be in the institution one scholarship of \$60 either in the general or special undergraduate course for each county in the province—those for Carlton, Queen's, Restigouche, St. John, Kings, Northumberland, Victoria, Westmorland, and York, becoming vacant during the current year—and the holders of these scholarships are exempt from all fees for instruction in the branches of study required for graduation; this represents an additional \$22.50, reducing the student's necessary expenses, as already stated, to \$92.50 per annum. What a boon it would be considered in England for a young man to be enabled to procure a collegiate education for 35s. per annum without obtaining scholarships, or for 18l. 10s. with easily-gained scholarships. But the scholarships are not the only encouragements offered for matriculating in the University of New Brunswick; there are likewise 56 exhibitions—the City of St. John being entitled to six, the City of Fredericton to three, nine of the counties to three each, and the remaining five counties to four each—the gaining of one of which entitles the holder to exemption from all charges of fees for education, the sole requirement being that the candidate shall pass the required examination and produce satisfactory testimonials that he is well deserving of such gratuitous instruction. As a matter of fact it may be stated that a large number of these exhibitions are constantly vacant, so that the tuition fees can never be referred to in New Brunswick as excluding the diligent student from acquiring an academic status. Once matriculated, the gold medal and prizes annually offered are quite sufficient to keep up a healthy competition among the undergraduates, and to ensure, by that means, a large degree of efficiency by the time the period for graduation arrives.

The care taken to secure thorough training before graduation is as great at Fredericton as elsewhere in Canada, the qualification for the B.A. being that the student shall satisfactorily master the subjects laid down in the curriculum of study, shall pass the College and University examinations, and complete his three years' course, and then satisfy the examiners for degrees; two years standing as B.A., and an examination in higher mathematics and the Greek and Latin languages are demanded for M.A.; six years standing as B.A., and an examination in chemistry, natural philosophy, and natural science for the B. Sc.; whilst five years standing as B. Sc., and an examination in general physics and mental science is required for the Ph. D. Similar standing—13 years, is required for the D.C.L., and the LL.D. is strictly honorary. The standard for matriculation is not so high as in some other universities, but notice is given that it will be raised, as soon as the state of the superior schools in the province justify it, and this is really the correct principle for those connected with any university to adopt. Whenever there is the slightest shortcoming in the superior schools of the district for which a university is chartered the professors should, as they do at Fredericton, assume the responsibility of accepting the students as they find them, and educating them up to the standard required

for graduation, and it is satisfactory to find that the standard for graduation is quite as high in the Canadian universities as in any dependency of the British Crown. Every student is required to attend divine service every sabbath, but he is not compelled to attend the Church of England, as the certificate of any minister of religion in or near Fredericton is accepted by the Senate in allowing the term, and even attendance at the daily reading of the scriptures and prayers in the University is excused when the parents or guardians of the students desire it; thus irreligion is discountenanced, and the advantages of the University are offered to students of every creed.

That the science course may be of the utmost utility to the largest possible number it is judiciously divided into three departments—mathematical, natural science, and English language and literature, the syllabus in each showing that a complete explanation of all useful details connected with the several subjects is given during the course. In the mathematical department the first year's study embraces the elements of plane, solid, and descriptive geometry, and the fundamental operations of algebra; whilst in the second year plane trigonometry, the mensuration of lines, surfaces, and solids, surveying and levelling, the principles of navigation, applied spherical geometry and trigonometry, analytical geometry, optics, astronomy are taken; the third year's study embracing the more advanced portions of analytical geometry, differential and integral calculus, statics and dynamics, hydrostatics and hydrodynamics, and pneumatics, after which either of two distinct branches may be followed, according as the student may require navigation and nautical astronomy or land surveying and engineering, the instruction in each case being of a thoroughly practical character. In the natural science department the first year is occupied by chemical and molecular physics during one term, inorganic chemistry two terms, and organic chemistry one term; whilst in the second year zoology and botany are fully considered; and in the third year the first term is devoted to physical geography and meteorology, and to lithological geology, including mineralogy, the composition, nomenclature, and arrangement of rocks; during the second term historical geology, including geology and paleontology, and the geological structure and history of Acadia is taught; and in the third term dynamical geology, including the study of the causes producing geological results—winds, waves, currents, earthquakes, volcanoes, &c.—are fully considered.

It will thus be seen that so far as the science students are concerned the instruction offered is ample to prepare them for any branch of industry to which they may propose to devote themselves when they leave the University. The studies for the English language and literature department are also arranged with much judgment, since they compel the student to get through a large amount of work, and he cannot fail to obtain a very sound acquaintance, not only with the history and structure of the language, but with the leading classical writers who have used it. Altogether, the University is an institution of which New Brunswick may well be proud.

SOUTH CROFTY.—There has been an important discovery in the 180 cross-cut. The lode has not yet been cut through, which we understand will take a few days to do. It is a very fine, and we should say, from all we hear, a rich lode as far as they have seen, about 2 ft. The men have been hindered on account of the water. A general sample has been tried, showing 21 per cent. of tin. A large portion of the stones would give 50 per cent. We must wait till the lode is proved before we can say much more. South Crofty, we are aware, is situated between East Pool and Tincroft, and this discovery now is the great East Pool lode, which mine is making all its riches in depth. There is one thing certain, that if the price of metal was higher these shares would double their present price.

COPPER ORES.

Sampled Jan. 3, and sold at Swansea, Jan. 16.

Mines.	Tons.	Produce.	Price.	Mines.	Tons.	Produce.	Price.
Betts Cove	114	9	£3 6 0	Cape Ore	47	26½	£19 6 6
ditto	114	9	6 6 0	ditto	47	26½	19 11 6
ditto	114	9	6 6 0	Union Ore	142	4½	2 11 6
ditto	114	8½	6 11 0	ditto	95	4	2 9 6
ditto	99	8½	6 9 6	ditto	95	4	2 9 6
Cape Ore	74	26½	19 12 6	ditto	1	6½	4 8 0
ditto	74	26½	19 7 0	Copper Reg.	9	37½	26 10 6
ditto	74	26½	19 6 6	ditto	1	35½	25 1 0
ditto	74	26½	19 13 0	Copper Ore	3	13	9 1 0
ditto	74	26½	19 13 6				

TOTAL PRODUCE.

Betts Cove	555	£3,542 6 6	Copper Reg.	10	£ 258 15 6
Cape Ore	454	9,052 11 0	Copper Ore	3	27 3 0
Union Ore	333	849 6 0			

COMPANIES BY WHOM THE ORES WERE PURCHASED.

Names.	Tons.	Amount.
P. Grenfell and Sons	257	£ 2,817 15 6
Nevill, Druce, and Co.	148	2,884 3 0
Vivian and Sons	420	3,640 5 0
Williams, Foster, and Co.	453	3,211 17 6
Sweetland and Co.	56	1,147 0 0
Landore Smelting Company	1	25 1 0
Total	1385	£13,726 2 0

TOTALS AND AVERAGES.

21 cwt.	Produce.	Price.	Per unit.	Standard.
Whole sale	1385	13½	£10 1 1	14s. 7½d. £95 16 4

Copper ores for sale Jan. 30.—Betts Cove 1454—Cape Ore 312—Union Ore 238—Copper Regulus 10.—Total, 2014 tons.

COPPER ORES.

Sampled Jan. 3, and sold at the Royal Hotel, Truro, Jan. 18.

Mines.	Tons.	Price.	Mines.	Tons.	Price.
Devon Great Consols	89	£6 2 6	Glasgow Caradon	73	£4 7 6
ditto	87	2 9 6	ditto	70	4 4 6
ditto	86	2 6 0	ditto	25	2 14 6
ditto	85	2 10 0	Holmbush	117	0 2 0
ditto	80	5 15 6	ditto	79	0 15 0
ditto	79	2 15 0	ditto	70	2 19 0
ditto	78	2 10 0	Brookwood	70	2 19 0
ditto	75	2 12 0	ditto	51	2 13 6
ditto	65	5 18 6	ditto	50	7 8 6
ditto	49	2 13 0	ditto	49	2 8 6
ditto	42	2 4 0	Wheal Crebor	81	3 4 0
ditto	5	29 10 6	ditto	72	3 4 0
South Caradon	90	9 1 6	ditto	51	2 14 6
ditto	69	4 13 6	Coombe Works Ore	114	1 2 6
ditto	67	4 10 6	ditto	65	4 15 6
ditto	62	4 14 6	East Caradon	65	4 15 6
ditto	61	11 5 6	ditto	31	4 9 0
ditto	60	18 4 0	ditto	29	5 17 6
ditto	47	9 10 6	Hington Down	75	2 15 6
ditto	44	5 15 0	ditto	47	2 7 6
ditto	40	4 10 6	Bedford United	71	3 17 6
ditto	35	3 4 6	ditto	47	3 17 6
ditto	30	2 17 6	Prince of Wales	53	2 12 6
ditto	28	2 6 0	ditto	25	2 10 6
ditto	27	2 15 6	West Maria & Fortescue	56	2 3 6
ditto	21	4 19 6	ditto	38	3 10 6
ditto	27	4 5 0	Killifreth	41	10 1 0
Gunnislake (Clitters)	83	4 18 6	ditto	19	4 16 6
ditto	82	4 15 6	Wheal Emma	38	3 2 0
ditto	77	4 16 6	Belstone	25	6 8 0
ditto	72	4 7 6	Wheal Friendship	18	3 0 6
Glasgow Caradon	73	4 13 6			

TOTAL PRODUCE.

Devon Great Con.	821	£3038 12 0	East Caradon	125	£ 618 14 0
South Caradon	470	3872 12 0	Hington Down	122	3 9 15 0
Marke Valley	371	1190 0 6	Bedford United	118	457 5 0
Gunnislake (Clit.)	314	1478 11 0	Prince of Wales	100	245 6 0
Glasgow Caradon	240	1020 3 0	West Maria, &c.	92	243 14 0
Holmbush	230	171 5 0	Killifreth	69	503 14 6
Brookwood	220	770 0 0	Wheal Emma	38	117 16 0
Wheal Crebor	204	628 11 6	Belstone	25	160 0 0
Coombe Works	130	165 17 0	Wheal Friendship	18	64 9 0

Average standard £104 10 0 | Average produce 6½
Average price per ton £4 1 6
Quantity of ore 3698 | Quantity of fine copper 241 tons 8 cwt.
Amount of money £15,061 5 6
LAST SALE.—Average standard £103 0 0 | Average produce 7
Standard of corresponding sale last month, £106 6 0—Produce, 6½

NO SALE ON THURSDAY NEXT, JANUARY 27.

Copper ores for sale at Tabb's Hotel, Redruth, on Thursday week—Mines and parcels.—West Torigus 289—West Seton 220—South Crofty 117—Levant 115—East Pool 85—Wheal Bassett 76—Botallack 50—Carn Brea 45—Penstruthal 44—Unity Wood 40—West Poldice 39—Cathedral 35—West Bassett 27—North Trekerby 20—Treigh Wood 9—West Godolphin 5—New Rosewarne 3—Burra Burra 3—Phillips's Ore 2.—Total, 1224 tons.

*. The complete Ticketing will be published in next week's Journal.

is 55 feet is also producing $\frac{1}{2}$ ton per fathom. The lode in Paigraive's engine shaft, sinking below the 65, is split into branches, and is of no value at present. In Quintas winze, below the 118, the ground is moderately easy for sinking. Victoria winze, below the 25, yields $\frac{1}{4}$ ton per fathom; here the lode is smaller than it was at the beginning of the week. Alfonso's winze, below the 55, has become quite unproductive. The stopes throughout the mines have not undergone any change worthy of notice in the past month. The ordinary surface works are being kept open, and the general condition of the mine is of a different order than it is in good condition. We estimate the raisings for January at 350 tons.

LANESIOSA.—Jan. 13: La Berta: Another lode dipping west has come into Guillermo's shaft, forming a junction with the one previously cut dipping east. The last mentioned appears to be thrown on the acute angle a short distance, whilst both are very small below the point of contact, and without any signs of ore. Sinking on the eastern underly has commenced in San Vicente shaft, and the lode is of the same nature. The lode is spotted with lead ore. The 30 metre cross-cut, west from San Vicente shaft, is in stiff limestone, the level being put out to intersect the other lode west. The shallow adit to San Vicente shaft is also in stiff limestone, but fair progress is being made in driving. The lode in the La Cruz deep adit is 3 ft. wide, composed of siliceous rock, strongly impregnated with blende and lead ores, and producing a little saving work.—Asuncion: The cave level stope continues to yield favourably. The tribute pitches are of no change—generally poor.

LINARES.—Jan. 13: The 103, east of Warne's engine shaft, has a little fallen off in value in the past month; now worth $\frac{1}{2}$ ton of ore per fathom. The lode in the same level west is wide and strong, and also yields $\frac{1}{2}$ ton per fathom. The lode in the 105, west of Peill's shaft, is well defined, and produces 1 ton of ore per fathom. A good length of valuable lode has been opened during the past month in the 90 west of Peill's, worth 2 tons of ore per fathom. The 65, west of the same shaft, continues without improvement. The 55, in the same level, and the canal surface, below the 105, is of the lode consist chiefly in carbonate of lime and lead ore, of the latter 1 ton per fathom. The 90, east of San Francisco's shaft, also yields 1 ton of ore per fathom. The 75, east of this shaft is without change. In the 65 the lode is small and poor. In the sinking of Peill's engine shaft below the 105 the men are working well. No. 211 winze, below the 75, is holed to the 90. In winze No. 212 the lode is small, with occasional stones of ore. The tribute department yielded very well during the past month, and the stopes are without any change of importance. The machinery is in good working order, and the surface works are being on without interruption. We estimate the raisings for January at 200 tons.

QUINTOS.—The men are getting through the lode in the 90 fm. level, west of Taylor's shaft, at a rapid rate; but, unfortunately, it is of no value. The lode in the 80, west of the same shaft, is well defined, and yields good stones of ore. The 90, east of Taylor's shaft, is without improvement. In the 80, east of Addis's shaft, there is a slight improvement; the lode is large, and yields good lumps of ore, worth 1 ton per fathom. The 65, east of the same shaft, is of the same nature, the east fortifying being now worth $\frac{1}{2}$ ton of ore per fathom. The lode in the 65, west of San Carlos shaft, is open and very easy for driving, but does not contain any ore. In the 80, driving in the same direction, the lode continues the same. The lode in the same level east is small and poor. The men are put to cross cut north in the 65 from east of Judd's shaft, to prove the ground. The 45, east of Judd's, is at present of no value. No lode has yet been met in the 32 cross-cut, north of Judd's shaft. In Taylor's shaft, below the 90, the men are working well, and the lode is of the same nature in the present month. Hence, below the 90, is being sunk in hard granite. The lode in Felipe's winze, below the 65, consists of carbonate of lime, quartz, and good lumps of ore; of the latter worth $\frac{1}{2}$ ton per fathom. We estimate the raisings for January at 100 tons.

ALAMILLOS.—Jan. 10: The lode in the 60, west of San Francisco shaft, is small, with a little ore. In the 50, west of San Felipe's shaft, the lode is strong, non-silting chiefly of carbonate of lime, and stones of ore. The same may be said of the lode in the 40, west of San Felipe's shaft. The 20, east of the same shaft, is of the same nature, and yields 1 ton of ore per fathom. The lode in the 35, west of Abercrombie's shaft, yields $\frac{1}{2}$ ton of ore per fathom. The 40, west of this shaft, also yields $\frac{1}{2}$ ton per fathom. The 50, east of Magdalena cross cut, continues unproductive. The same level west is without improvement. In the 50, east of San Enrique's shaft, the lode is small, and the ground hard for driving through. The lode in the 100, east of Taylor's shaft, is large and strong, and contains good stones of ore. In the same level west the lode has very much improved, being open, easy for driving, and yielding good stones of ore. The 85, east of San Adria's shaft, produces good stones of ore. The driving north the 60, east of San Victor's shaft, intersected a small lode, but it is poor at this point. The lode in the same level west is very regular, and contains a little ore, but not enough to value. The 30, east of San Jose's shaft, is poor. No lode has been met with in the 50 cross-cut east of Crosby's shaft.

The 60, east of Judd's shaft, though not so productive as it was, is still opening good ore ground, worth 1 ton per fathom. In the 70, west of the same shaft, the lode is of the same nature, and yields 1 ton of ore per fathom. The 80, east of the same shaft, being driven in a straight course to get under Sanchez's winze, and is off the lode at present. The same level west has improved in the past few days to be worth 1 ton of ore per fathom. Abercrombie's shaft, sinking below the 40, progresses satisfactorily. The sinking of Sanchez's winze below the 25 is somewhat hindered by an increase of water. Felipe's winze is now in contact with the second part of the slide which is split between this winze and the 6. The lode in Horan's winze, below the 50, is small and irregular, and without ore. Depozo's winze, below the 40, is of the same nature, and yields 1 ton of ore per fathom. The 30, east of this shaft, has improved a little, and now produces good lumps of ore, worth $\frac{1}{2}$ ton per fathom. The usual quantity of ore was returned in the past month, and the stopes are now without any alteration worthy of notice. The works at surface are going on very regularly, and the machinery throughout the mine is in excellent condition. We estimate the raisings for January at 175 tons.

For remainder of Foreign Mines, see to day's Supplement.]

THE WEEK.

SATURDAY, JAN. 13.—The report current yesterday that the engine had been stopped at Wheal Grenville and the mine flooded appears to be premature, but to the disgust of several frightened holders who sold out at anything they could get. The price for Wheal Grenville shares has been about 20s. for the last week, but on Thursday the mining market improved, and on Friday night some lots were sold at 5s., if not lower. These morning orders were made to get the shares back, but though 15s. was offered, there did not seem to be any sellers. Notwithstanding the low price of tin, there is little doubt but that Wheal Grenville shares are worth buying when below 11. The shareholders are mainly strong and influential men who mean to hold on for a long time yet to come. There was a further recovery of $\frac{1}{4}$ in Exchequer, to 7 $\frac{1}{2}$; Great Railway rose 10s. to 21; Eberhardt 5 to 8 $\frac{1}{2}$; and Richmond 2s. 6d. to 2s. 7 $\frac{1}{2}$. Very widely spread is the opinion that the Government will not be able to get the railway and foreign department closing in the next few days, and that the accounts will be composed of closing of weak "bull" accounts in view of Monday being continuation-day. Egyptian, 49 $\frac{1}{2}$ to 49 $\frac{1}{2}$; Russian, 80 $\frac{1}{2}$ to 80 $\frac{1}{2}$. In railways Brighton, A, declines to 105 $\frac{1}{2}$; Caledonian to 121 $\frac{1}{2}$; and District to 47 $\frac{1}{2}$. Metropolitan closed at 100. Candiana Preference 73 $\frac{1}{2}$, and the ordinary at 21 $\frac{1}{2}$. The reports received from Pandora Mine continue very good, and the shares have been enquired for.

MONDAY (Continuation-day).—The settlement commenced this morning, but the account was only a small one, and was not adjusted. Russian of 1870 was found to be scarce, and 10s. per pound was paid for the loan, making up per cent. Egyptian of 1873 made up at 50, the contango being at the rate of 3 per cent. per annum. Manchester and Sheffield Railway made up at 75 $\frac{1}{2}$, and we dealt in at 75 $\frac{1}{2}$, but from this there was a sharp fall on the announcement of 3 $\frac{1}{2}$ per cent. dividend, 4 per cent. being expected. The accounts are expected to be anything but satisfactory, they only carry forward 1600 $\frac{1}{2}$; closing price, 73 to 74. Berwick, which made up at 108, and Edinburgh 107 $\frac{1}{2}$, closing 108 $\frac{1}{2}$ and 109 $\frac{1}{2}$ respectively, were not so well received. The accounts of the latter, after requiring a contango of 5s., became even, making up price 108. Caledonia were continued at 122, and East London at 20. In mines East Van made up 9 $\frac{1}{2}$, Eberhardt at 8 $\frac{1}{2}$, Richmond at 7 $\frac{1}{2}$, Flagstaff at 27 $\frac{1}{2}$, and San Pedro at 1. The market Flagstaff improved to 3, Richmond declining to 7 $\frac{1}{2}$. West Tankerville, 1 $\frac{1}{2}$ to 2. Javali, 11s. to 13s.; a remittance valued at 9700, has been received here.

TUESDAY.—The markets were for a time favourably influenced by telegrams in one of the "beards" referring to a "probable settlement" at Constantia. A few "beards" of Russian and Hungarian made haste to close, but found they had been premature on flat prices coming from the Continent. The gain on the day in the foreign department was ultimately very small. Thus Russian of 1873 was done at one time at 82 $\frac{1}{2}$, then relapsed to 81—rather lower than yesterday; but Hungarian of the same year managed to maintain to the close a rise of 11 (55 $\frac{1}{2}$ to 56 $\frac{1}{2}$); Egyptian, 50 $\frac{1}{2}$ to 50 $\frac{1}{2}$; Turkish 1871, 37 $\frac{1}{2}$ to 38 $\frac{1}{2}$; ditto Treasury, A, 20 $\frac{1}{2}$ to 21 $\frac{1}{2}$; ditto General Debt, 11 $\frac{1}{2}$ to 11 $\frac{1}{2}$; Spanish, 12 $\frac{1}{2}$ to 12 $\frac{1}{2}$; the coupons; San Pedro, 1 to 1; Argentine Bonds, the 1868 loan advanced 1 to day, to 67. In railways the Scotch lines were in prominent demand. North British advanced 5 $\frac{1}{2}$, to 109 $\frac{1}{2}$; and Caledonian 1 $\frac{1}{2}$, to 123 $\frac{1}{2}$. A rise of 3 $\frac{1}{2}$, to 61 $\frac{1}{2}$, and a similar fall in Dover, A, to 118 $\frac{1}{2}$, also took place; the latter, however, being rather prejudiced by the Brighton dividend, which was announced at 7 $\frac{1}{2}$ on the undivided ordinary stock, 7 $\frac{1}{2}$ being expected in some quarters. The deferred stock, now 106 $\frac{1}{2}$, will receive for the value of 1876 8 per cent. Metropolitan, 105 $\frac{1}{2}$ to 105 $\frac{1}{2}$; ditto, 103 $\frac{1}{2}$ to 103 $\frac{1}{2}$; ditto, 103 $\frac{1}{2}$ to 103 $\frac{1}{2}$. In the "beards" the 1868 loan advanced 1 to day, to 67. In railways the Scotch lines were in prominent demand. North British advanced 5 $\frac{1}{2}$, to 109 $\frac{1}{2}$; and Caledonian 1 $\frac{1}{2}$, to 123 $\frac{1}{2}$. A rise of 3 $\frac{1}{2}$, to 61 $\frac{1}{2}$, and a similar fall in Dover, A, to 118 $\frac{1}{2}$, also took place; the latter, however, being rather prejudiced by the Brighton dividend, which was announced at 7 $\frac{1}{2}$ on the undivided ordinary stock, 7 $\frac{1}{2}$ being expected in some quarters. The deferred stock, now 106 $\frac{1}{2}$, will receive for the value of 1876 8 per cent. Metropolitan, 105 $\frac{1}{2}$ to 105 $\frac{1}{2}$; ditto, 103 $\frac{1}{2}$ to 103 $\frac{1}{2}$; ditto, 103 $\frac{1}{2}$ to 103 $\frac{1}{2}$. In the "beards" the 1868 loan

Pontgibaud, 15 to 21; a calamitous fire has occurred in one of the villages near Pontgibaud¹, by which the families of several of the workmen belonging to these mines have been great sufferers. Messrs. John Taylor and Sons submit to those who are interested in the company a communication which has reached them of a calamity that has befallen the inhabitants of the Bourg of St. Ours, a large village in the neighbourhood of the company's establishment, and to solicit on behalf of the sufferers by this disaster the charitable aid of the shareholders, and of any other friends who may be disposed to contribute to the relief of those poor people. Mr. Arthur Taylor and Mr. Nosky Bontoux write from Pontgibaud that on the 11th inst. a fearful fire broke out at the Village of St. Ours, where several of the workmen employed by the company reside. Although they got the fire engines which are kept at the

ing works, as quality as possible. There being a quantity of material from the mine at Arthur's street, it was decided to have a small shaft sunk to 20 families to get them. They were all taken down at once.

St. John del Rio, de Janeiro member to have the ore being taken from Morro Veio and the cost 60 cents per ton. Excepted carried in any circumstances is a supply of both iron ore producer, and the attention of the average of the last year has been carried away by the wagons. The weight of 27-48 m considered very good camp are going off being confused with flows containing streak as much as large body of iron formation process larger than could be the tailings are more than four other than fourth treatment, a circle

Santa Barbara during November 3800 oits. per 8a. 6d. per oit produce for the calculated by 913z Gs., thus From this pro owing to the siderably low North Del Rio November pro reported in R produces from (ordinary), in Vivian reports date, 1809 oits Argentine,

From the late satisfactory work as working Condes, 5 to on Saturday convey has been standing, w from these n

Flagstaff, Arizona session of the improved pro appealing to marking that the peculiar under the ne upon 900f. w and effects, v tent of 100f. board that his judgment petition by difficulty by and they he also to report 10 days sight A telegram i at Utah has restrains Mr are entitled have display highly satis manager in party were shareholders also, what i of ore daily

Richmond at \$50,000. T of \$25,000. I reach the L to have been from the m the shaft in lime-time to li stopes below 300 feet 35 ft. of and of slightly im that "the st west side of the lime same." C ing large quan rather is need in few days. In August a fi that month t na correspond one more p expected ear not answered, and that exten our two imm readers it exte develop, or h have issued a valuable to ob trable-the loc no profion w opposition we legat adviser, However, as t that the lode patents shou States paten One piece is Exchequer in fine ore, w were raised 370 ft. from during the loads of go advanced 10 f rise. Eberse only pros New York months for Mill has be down untill The mar California steady at that it mu Should th fits will, i the man

mining works, and as large a staff of men as could be mustered to the spot as possible, it was too late to do more than to check the progress of the fire. There being a strong storm of wind blowing, and 22 houses were on fire at one time. More than 20 houses were burnt, the greater part of which were not insured. Mr. Arthur Taylor concludes by making an earnest appeal to us to get up a subscription to aid him in relieving these poor people. He says there are about 15 to 20 families entirely ruined, some without even enough clothing, and nothing to eat, except what those who were fortunate enough to escape being burnt out can give them. They are all in most urgent need, and what can be done must be done at once.

John del Rey, 325 to 335; the latest telegram received, dated Rio de Janeiro, Jan. 12, states the produce for the month of December to have been 41,500 oits, of the value of 16,081/2, the ley of the ore being 7.3 oits. per ton. Advices were received on Monday from Morro Velho to Dec. 19. The return for November was 14,815/2, and the cost 6593/2, leaving 8222/2 profit. The cost is below the average. Excepting the month of September, it is the smallest cost incurred in any one month during the year. The profit under the circumstances is as much as could be expected. They have now a fuller supply of both mineral and water, and, therefore, should be able to extract more produce, and in proportion as this is done the amount of profit. The attendance of natives, though considerable, has not given as high a duty as the last two weeks of November. The quarrying and stoping of mineral have been carried on very steadily, the output for the fortnight amounting to 3468 tons. The average number of borers daily being 9246, gives a duty per month of 3748 mine wagons, or a daily duty of 288 mine wagons, which may be considered very good and large duty. The sinking, driving, and stoping in the mine are going on regularly, the pumps working easily and well, and the hauling being conducted without any interruption or breakages of any kind. The spalling of the rock continues to be rather inconveniently filled with a considerably increasing amount of mineral, though the stamping mill is now being at what might be regarded as high rates of speed. The stamps are kept well supplied with mineral. A large body of auriferous sand is caught in the strakes, and subjected to the amalgamation process—which is working pretty well—though the loss of quicksilver is larger than could be wished. All the arrastres employed in the treatment of the filings are kept fully and constantly at work, but they are unable to re-grind more than the fourth of this tailing sand, as received at the Fraia works. The other three-fourths of the body ought to be deposited close to those works for future treatment, as circumstances may render such convenient.

Santa Barbara, 23 to 24; the advices to December 12 state that during November 1021 tons of mineral were stamped, yielding 3866 oits. per ton, or a total of 3836 oits. of gold, which, valued at 6s. 6d. per oit, amounts to 1651/2 lls. as the estimated value of the produce for the month. The mine working cost for the same period, calculated by the manager at the exchange of 24.1, amounted to 913/2 6s., thus showing an estimated profit of 738/2 5s. for November. From this profit, however, a deduction of about 30/2 should be made, owing to the exchange having been calculated at the mine at a considerably lower rate than was ruling at Rio de Janeiro. Don Pedro North del Rey, 1/2 to 1/2; the usual telegram, which should advise November produce, is not to hand, owing no doubt to breakages reported in Rio and Bahia cable. The report for November gives produce from 145490 tons, dry weight, 2552/2 19s. 6d.; cost (ordinary), including all general expenses, 1899/2 14s. 11d. Capt. Vivian reports under date December 17:—"Produce weighed to date, 1809 oits."

Argentine, 5 1/2 to 6; advices are due from these mines next week. From the latest accounts the works were progressing in the most satisfactory manner, and increased returns of gold were expected, as working in the Pique Mine will be resumed about this date. Cones, 5 to 5 1/2; a detailed report, which arrived from these mines on Saturday last, appears in our issue to-day. An important discovery has been made in stripping down the new shaft in the Iolima Mine, where it is found that a rich portion of the lode has been left standing, worth 60/2 per fathom. The report and advices received from these mines are of the most satisfactory character.

Flagstaff, 3 1/2 to 3 1/2; the fact of the company having regained possession of the mine was referred to in last week's Journal, and the improved prospects were also noticed, and the directors are now appealing to the shareholders to follow up their great success, remarking that they have continually pressed upon the shareholders the pecuniary difficulties of the company in London, and are now under the necessity of informing them that an execution for close upon 900/2 was last week put in on the company's office furniture and effects, which were again protected by the directors to the extent of 100/2. The solicitors of the company have since apprised the board that the execution creditor is taking active steps to enforce his judgment, and they understand he will proceed by presenting a petition to wind up the company. The directors can only meet this difficulty by getting the shareholders to lend money on debentures, and they beg their prompt attention and assistance. They have also to report the receipt on Saturday last of a bill for 1000/2, at 10 days sight, drawn by the company's representative at the mine. A telegram received on Tuesday informed the board that the Court at Utah has confirmed the company in possession of the mine, and restrains Mr. Davis from interfering. For this result the directors are entitled to much credit for the energy and perseverance they have displayed in the matter. Such a result will, it is thought, be highly satisfactory to the shareholders, especially as the new manager in his recent letters describes the plot which the opposite party were devising in order to seize the mine from the English shareholders, and how he frustrated their intentions. He states also, what is much more to the point, that he is turning out 60 tons of ore daily, and that the mine is an exceedingly valuable one.

Richmond, 6 1/2 to 7; the usual weekly telegram gives the week's run as 50,000. The refinery has this week produced 606 bars to the value of 235,000. The manager's report for the week before last did not reach the London office till Saturday. But little progress appears to have been made in the 800 and 700 exploratory drifts started from the main shaft. The fact that the lode is trending away from the shaft increases the length and work of the drifts started in limestone to intersect it. "The ore cut by the drift at the 800 is still narrow. The lode is looking well, especially the new stopes started from the intermediate level, 38 ft. above the 6 level, where it will be borne in mind the ore was 30 ft. wide and of good quality. "The workings on the west side of the hill have slightly improved." But little change is recorded in the last report, which states that "the stopes are looking better than they were last week. "Works on the west side of the hill are without improvement; all other parts of the mine about the same." "All the furnaces have been running well through the week, smelting large quantities of ore. The grade of the ore being smelted is low. "The railroad is nearly completed, the lower end finished, and the upper end will be a few days. "The only unfavourable feature about the mine appears to be the comparatively low grade of the ore that has latterly been sent down for smelting. In August a fine body of rich galena was met with, which raised the profit for that month to over 20,000/2; but the stratum proved to be but thin, and as yet no corresponding body appears to have presented itself, and the ferruginous ore once more predominates, thus reducing the assay. The west hill discoveries were expected ere this to have made up the deficiency, but as yet the forward drift has not answered expectations. The character of the lode in the Richmond being that of extremely irregular masses of ore, erratic in plan and section, widening out into immense chambers, and as suddenly pinching in at one or other end, renders it extremely difficult to form any opinion of what the forward drifts may develop, or how soon the grade of the ore may diminish or increase. The directors have issued a circular explaining that some three months since, thinking it advisable to obtain patents for certain new mining grounds located in right of having traced the lode in them, the required advertisements were inserted for 60 days, no protest being lodged till a little a few days of the expiration of the time when opposition would have been useless. It appears that Judge Wren, the company's legal adviser, expresses the opinion that the protests in question are unimportant. However, as they have been duly made, the question must be settled before the State authorities, and the decision will soon be known. The directors consider that the lode rights will suffice to hold the locations in question, even if the patents should not be obtained. A local journal of Dec. 27 reports that "United States patents have been issued to two parcels of mineral land in this district. One piece is confirmed to the Richmond and the other to John E. Plater."

Exchequer, 1 1/2 to 2 1/2; the 400 is in 57 ft. from the cross-cut, and in fine ore, and all the stopes are doing well; 55 car-loads of ore were raised during the week. L.X.L., 3 to 1; the north drift is in 370 ft. from the cross-cut, on the 200 ft. level; 12 1/2 ft. were driven during the week, and the lode remained without change; 25 car-loads of good ore were raised from the drain tunnel, which was advanced 10 ft. Some good ore was coming in from the back of the rise. Eberhardt and Aurora, 8 1/2 to 8 1/2; the tunnel is being vigorously prosecuted, and the tunnel through Treas-Hill, started by a New York company last spring, which has been lying idle for several months for want of funds is soon to be worked. The Old Smoky Mill has been closed; the Stafford Company, who have leased this mill, have been running it on their own ores, but have closed it down until spring.

The market for Hydraulic or Gold Washing shares has been steady at quotations. The latest information by telegram from California states that it has been raining for several days past, so that it may be assumed that the rainy season has really set in. Should this be the case washing will be quickly resumed and profits will, it is anticipated, return, as all the claims represented on the market are ready to commence. Blue Tent, 3 to 3 1/2; in another

column will be found a letter from the manager respecting the last run, from which it appears that the gravel at South Yuba claim gave nearly a dollar per inch of water used for 24 hours washing. This result is exceptionally good, and still further proves the correctness of the manager's remarks that with abundance of water there is no question about the property yielding good and substantial profits. Oregon Pref., 4 to 4 1/2; in another column are extracts from the report of Mr. J. E. Bowe, who superintended the operations required for opening the company's mines. The report speaks favourably of the extent and value of the property, and now that the claims are in working order, and the ditches completed, there appears to be no doubt at all as to the success of the future workings. It is understood that the company intend to issue the remainder of the preference shares. The entire amount of this stock will be repaid out of profits before the holders of ordinary shares participate, while the preference stock will after repayment rank equally with the ordinary shares for dividends.

With regard to shares in Lead Mines, Van is quoted 3 1/2 to 40, ex div.; the usual underground works are being vigorously proceeded with, and the mine continues to look as well as ever. East Van, 5 1/2 to 9. Van Consols, 2 to 2 1/2; the bottom level has been reached by the new drawing-shaft, and every effort is being made to clear up the same to commence operations on the course of lead which only waits development at this point. The manager speaks well of the future of this property. Glyn, 2 to 2 1/2; all work is progressing with regularity, and the shaft is being pushed down with the confident expectation of a good course of lead being met with at an early date. Grogwinion, 5 1/2 to 6; the meeting is called for Jan. 31, and it is proposed to pay a dividend of 20 per cent. Wye Valley, 6 to 6 1/2; the 22 and the east end of adit have again improved, and prospects are good. On Wednesday 60 tons of lead were sold, at 15/2 3s. 6d. per ton. West Wye Valley, 3 1/2 to 4; the lode at Brookes' shaft is looking well for rich deposits of lead, and in the 40 there has been a further satisfactory improvement. Red Rock, 2 1/2 to 3; the bottom level is opening out well, and all operations are going on favourably. St. Harmon, 3 1/2 to 3 1/2; the 67 and 35 are looking better than for some time past, and yielding a good quantity of ore. The manager says that there are indications of further speedy improvements, and that prospects were never brighter than at present. South Cwmystwith, 3 to 3 1/2, cum new shares; during the week a further change for the better has occurred, the lode being worth 3 to 5 tons per fathom. Assheton, 1 1/2 to 1 1/2; West Assheton, 1 1/2 to 1 1/2.

Pennerley, 1 to 1 1/2; there is no change reported from this mine. The continued rains interfere somewhat with operations both underground and at surface. The sale on Wednesday last, 50 tons, realised 791/2 5s. Pateley Bridge, 2 1/2 to 3; the Rake vein in the 30, both east and west, is rapidly improving as the end comes up under the rich courses of ore left by the former workers, and the agent is sanguine of good results here. Other parts of the mine are also improving. West Pateley Bridge, 5 to 5 1/2; the level north-west from No. 2 shaft upon the vein is worth 1 ton of lead ore per fm. The cross-cut north from same level upon the cross-vein is improving as the North Rake lode is approached. Good progress is being made with the erection of the dressing apparatus, and the agent expects to commence dressing the ore at surface next week.

Penstruthal, 11s. to 13s.; the mine continues to open out well, and bids fair to revive the fortunes of the famous Gwynnap district; regular and substantial returns of copper ore are now being made. Cathedral, 20s. to 30s., is opening satisfactorily; a good parcel of copper ore will be sampled this month.

Subjoined are the closing quotations:—
Assheton, 1 1/2 to 1 1/2; Carn Brea, 35 to 40; Devon Great Consols, 4 1/2 to 4 1/2; Dolcoath, 37 to 39; East Caradon, 1 to 1 1/2; East Van, 5 1/2 to 9 1/2; Glyn, 2 to 2 1/2; Great Laxey, 20 to 21; Great West Van, 3 1/2 to 4 1/2; Hingston Down, 1/2 to 1; Leadhills, 6 to 6 1/2; Marke Valley, 1 to 1 1/2; Parys Mountain, 1/2 to 1; Pateley Bridge, 2 1/2 to 3; Pennerley, 1/2 to 1; Penstruthal, 1/2 to 1; Roman Gravel, 13 1/2 to 14 1/2; Tankerville, 5 1/2 to 5 1/2; Tinsley, 19 to 21; Van, 3 1/2 to 40; Van Consols, 1 1/2 to 2 1/2, ex div.; West Assheton, 1 1/2 to 1 1/2; West Basset, 4 to 5; West Chiverton, 17 to 19; West Tankerville, 1 1/2 to 2; Wheel Crebor, 2 1/2 to 3 1/2; Wheal Grenville, 1/2 to 1/2; Almada and Tinto, 1/2 to 1/2; Argentine, 5 1/2 to 6; Birdseye Creek, 1/2 to 1/2; Cape Copper, 38 to 40; Cedar Creek, 1/2 to 1/2; Chontales, 5-16ths to 7-16ths; Colorado Terrible Lode, 1/2 to 1 1/2; Condes of Chili, 5 to 5 1/2; Don Pedro, 1/2 to 1/2; Eberhardt and Aurora, 8 1/2 to 8 1/2; Emma, 1/2 to 1/2; Exchequer, 1 1/2 to 2 1/2; L.X.L., 3 to 1; Flagstaff, 3 1/2 to 3 1/2; Frontino and Bolivia, 1 1/2 to 1 1/2; Javal, 1/2 to 1/2; Kapanga, 3 1/2 to 4 1/2; Last Chance, 1/2 to 1; Malpas, 1/2 to 1/2; Malabar, 1/2 to 1/2; New Quebrada, 3 1/2 to 4 1/2; New Pacific, 1/2 to 1/2; Penstruthal, 1/2 to 1/2; Plumas Lure, 1 1/2 to 2; Rica, 1/2 to 1/2; Richmond Consolidated, 6 1/2 to 7; San Pedro, 1 to 1 1/2; St. John del Rey, 325 to 345; Sierra Buttes, 1 to 1 1/2; South Aurora, 1/2 to 1/2; Sweetland Creek, 3-16ths to 5-16ths; Teocoma, 1/2 to 1/2; United Mexican, 2 1/2 to 2 1/2; West Tent, 3 to 3 1/2; Oregon (pref.), 4 to 4 1/2; Wheel Agar, 3 to 3 1/2; West Pateley Bridge, 5 to 5 1/2.

COLLIERIES.—Business on the market for colliery shares has not been during the past week quite so active as at the commencement of the year. A fair number of transactions have, however, taken place, and in some cases a rise in prices is to be recorded. The reports from the various coal centres are more than usually good, and freshhold a further improvement ere long. At Newport, especially, there is brisker, and evidence of increasing activity is noticeable in the enlarged and enormous imports of Spanish ore for the manufacture of iron. A better state of things is also recorded from North Wales, Lancashire, Barrow, and Newcastle. Under these circumstances no doubt collieries will become more profitable, and again sought after as an investment. A good number of transactions have taken place in Cardiff and Swansea, New Sharlston, and Chapel House shares, all of which are slightly better; Newport Abercrom and Thorps Gawber have been offered, and leave off at their lowest price. Cardiff and Swansea closed 13 1/2 to 14, and New Sharlston at being at 4 1/2 to 5 1/2, leave off at 4 1/2 to 5. A Chapel House the new pit is reported to be down 373 yards, 6 1/2 yards having, notwithstanding a slight delay, been sunk since this time last week. It is expected the pit will be completed to the Park Mine, at a depth of between 300 and 400 yards, in about three weeks. The manager reports a brisk trade, and that all things are going on well. The shares close firm at 8 to 3 1/2. Thorps Gawber close at 2 to 2 1/2, and Cakemore 2 1/2 to 3. The dissatisfaction of the shareholders in Newport Abercrom with regard to the debentures still continues, and the shares have receded to 3 1/2, at which price they close flat. Bilsen and Group Meadow are at nominally 7 1/2 to 7 1/2. It is anticipated the amalgamation with the Fox's Bridge Company will be completed by about the end of next month. We hear that a new seam of coal has been struck at West Mostyn, but are as yet not in possession of the details. Alltali, 5 to 5 1/2; operations are proceeding satisfactorily. The new engines have been started and work well. At the No. 2 pit drivings upon the "Bind" coal exhibit good results. Llay Hall, 9 1/2 to 10; work is being pushed forward here as quickly as possible. The "Main" coal is reported of excellent quality.

At the Truro Ticketing, on Thursday, 3698 tons of copper ore were sold, realising 15,061/2 5s. 6d. The particulars of the sale were—Average standard, 104/2 10s.; average produce, 6 1/2; average price per ton, 4/2 1s. 6d.; quantity of fine copper, 241 tons 8 cwts. The following are the particulars:—
Date. Tons. Standard. Produce. Per ton. Per unit. Ore copper.
Dec. 21. 3338. 106 8 0. 6 1/2. 23 17 0. 13s. 7d. 287 18 0
Jan. 4. 1430. 103 0 0. 6 1/2. 4 9 0. 12 8 1/2. 63 12 6
18. 3698. 104 10 0. 6 1/2. 4 9 0. 12 8 1/2. 63 7 0
Compared with the last sale, the decline has been in the standard 1/2 12s., and in the price per ton of ore about 2s.

At Swansea Ticketing, on Tuesday, 1365 tons of copper ore were sold, realising 13,726/2 2s. 0d. The particulars of the sale were—Average standard for 9 per cent. produce, 95/2 16s. 4d.; average produce, 13 1/2; average price per ton, 10/2 1s. 1d.; quantity of fine copper, 187 tons 14 cwts. The following are particulars of two last sales:—
Date. Tons. Standard. Produce. Per ton. Per unit. Ore copper.
Jan. 2. 1722. 105 9 9. 16 1/2. 212 0 8. 14s. 8d. 273 9 0
16. 1365. 95 16 4. 13 1/2. 10 1 1. 14 7 1/2. 73 2 6
Compared with the last sale, the advance has been in the standard 6s. 8d., and in the price per ton of ore about 1s. The Cape ores gave a produce of 26 1/2 per cent., and sold at an average of 19/2 10s. 2d. per ton, or 14s. 11 1/2d. per unit of fine copper, the standard realised being the same as that for the whole sale. On Jan. 30 there will be offered for sale 2014 tons, of which more than three-fourths is from Newfoundland, the parcels being—Betts Cove, 1454 tons; Cape, 312 tons; Union, 235 tons; and copper regulus, 10 tons.

The directors of the National Boiler Insurance Company, Limited, have declared the usual dividend for the half-year ending Dec. 31, at the rate of 12 1/2 per cent. per annum.

NOTICE OF REMOVAL.

MESSRS. F. W. MANSELL AND CO. (SWORN STOCK AND SHARE BROKERS), have REMOVED to 43 and 43 1/2, PALMERSTON BUILDINGS, OLD BROAD STREET, LONDON, E.C.

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MESSRS. JAMES AND SHAKESPEARE beg to give notice that their NEXT SALE will take place on Tuesday, the 23rd inst., at Two P.M., at the Baltic Sale Room, Threadneedle-street, when they will OFFER FOUR HUNDRED AND SIXTY TONS IN CAKES AND ONE HUNDRED AND FIFTY TONS IN INGOTS.

Catalogues may be obtained at their offices, 10, Austinfriars, E.C., London, and 3, Peter-street, Liverpool; also of Mr. D. DOCKER, 38, Cannon-street, Birmingham.

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Has 24 years' experience in Mining and Smelting, and 10 years' experience in American Business and Law, offers his services at moderate charges for Reporting on Mining and other Property in any of the above-named States or Territories; gives correct, safe, and responsible advice as to securing full titles and possession; and, as to best mode of utilising the property, will assist in settling existing difficulties by compromise, and in disposing of developed mining property when held at real value; offers his assistance for securing undeveloped mining properties at home prices. As to care taken in reporting, reference is made to the *Mining Journal* Supplement, April 1, 1876, containing report on property of the Maxwell Land Grant and Railway Company; as to technical standing, to the prominent men of the trade—compare *Mining Journal* of Aug. 30 and Nov. 31, 1872, and *New York Engineer and Mining Journal*, Feb. 28, 1874.

RAILWAYS, AND BRITISH LEAD MINES.
NOW READY—FIFTH EDITION, price 1s. 6d.

BRITISH LEAD MINES, with MAPS, and a NEW PREFACE:
containing an analysis of Railway and Lead Mining Shares and Dividends.
By J. H. MURCHISON, F.R.G.S.
London: At the Author's Office, 8, Austinfriars, E.C.

"Contains a good deal of information that may be useful at present. Mr. Murchison's theory is briefly that on the average British Lead Mines have less of the lottery element in them than any others, and the figures he gives seem to support that view; at all events, those interested in this industry will find his facts and observations worth reading."—*Times*.
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Beg to notify to their clients and investors generally that Shares offered in the LLANRWST LEAD MINE at low prices, through the medium of this Journal, are, rarely, if ever, delivered to the Buyer. To ensure the delivery of Shares bought, purchasers are cautioned to pay cash only on the delivery of transfers, accompanied by the holders' certificates.

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SELLS THE FOLLOWING SHARES, free of commission:—
100 Aberdaunt, 11s. 9d. 20 East Van, 28 12s. 6d. 50 Pennerley, 22s.
40 Argentine, 25 1/2. 25 Fortuna, 26 1/2. 100 Parys Mountain, 10s.
30 Australian, 22 1/2. 50 Flagstaff, 23 12s. 9d. 75 Penstruthal, 11s.
15 Alamillos, 22 7s. 6d. 10 Great Laxey, 420 1/2. 20 Richmond, 48 1/2.
50 Bodidre, 20s. 6d. 80 Glyn, 22 3s. 9d. 15 Roman Gravel, 213 18 9
100 Birdseye Creek, 2 1/2. 100 L.X.L., 19s. 20 So. Condurrow, 26 1/2.
50 Birkdale, 26s. 20 Linares, 26 1/2. 50 Santa Barbara.
50 Colorado, 21 1s. 3d. 50 Ladywell, 27s. 6d. 20 Tankerville, 28 1/2.
5 Cape Copper, 239. 70 Marke Valley, 21 1/2. 15 Van, 239 1/2.
20 Devon Consols, 24 1/2. 20 New Quebrada, 24. 15 Van Consols, 22 1/2.
25 Eberhardt, 28 1/2. 20 New Zealand, 24 1s 3 20 W. Chiverton, 219.
70 Exchequer, 22 3s. 9d. 40 North Laxey, 21s. 6d. 50 W. Tankerville, 21 18 9

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Have Agents in England, Scotland, Wales, and on the Continent.

Notices to Correspondents.

* Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be kept on receipt; it then forms an accumulating useful work of reference.

SYNDICATES.—"J. C." (Tadcaster).—Few, if any, respectable brokers connect themselves with syndicates; the organisation of such projects is chiefly undertaken by quite another class of persons. The system facilitates the perpetration of the greatest injustice upon bona fide investors to whom the members of the syndicate sell, and is usually disastrous to such members of the syndicate as are not hourly in the market, and have anything to lose.

CLEMENTINA.—"Speculator." (Brighton).—With reference to the constitution of this company it is to be remembered that the Gwydyr Park property was for two years advertised in the Journal and elsewhere, and no one would purchase it, and that so far from the mine having been stopped to "get rid" of the share holders, every means were taken to induce them to go on, and after Clementina was formed the promoters wrote to all the Gwydyr Park shareholders they knew urging them to join at par; so that there is no ground for the complaint that unfair advantage was taken of them in connection with the reconstitution.

RECEIVED.—"F. M. F. Cazin (Santa Fé); Next week—"R. W."—"T. C."—"Shareholder" (Penrthall).—"Shareholder" (Van Consoles).—"Constant Reader" (Leith).—"J. G. B." (Postkarte).—"M." (Yes).—"J. K."—"H. and S." Perhaps next week.

AMERICAN SUBSCRIBERS.—In reply to several enquiries, it may be stated that subscribers in the United States can be supplied with the Mining Journal, post free, at the price of \$3.50 per annum, payable in advance, by remitting to Mr. D. Van Nostrand, publisher, and importer of scientific books, &c., Murray-street, New York; or, direct to our Office, 26 Fleet-street, E.C.

THE MINING JOURNAL,

Railway and Commercial Gazette.

LONDON, JANUARY 20, 1877.

FREE TRADE, OR RECIPROCITY.

British traders need to be cautioned not to allow their regret at the current seeming depression in business to make them lose confidence in principles which have hitherto—indeed, still are—working so well for the nation. Beyond doubt we might have thought that our example would have had a more direct influence upon other nations; that other great producing countries would be more ready than they at present seem to avail themselves of the numerous advantages which invariably follow in the wake of unfettered commerce. If, however, their action should be disappointing ours should not be unwise. We have embarked upon a free-trade policy, we accepted it for better or worse, and hitherto it has worked greatly to our advantage. If now and then the want of commercial foresight on the part of our neighbours should seem to be but little encouragement to continue a practice by which they are so largely served it must not be forgotten that England adopted free trade not for others, but for her own good. Unfettered commerce has the "quality of mercy," but if all who are benefited by it have not yet asserted themselves of the duality of its blessing it is not for us who are better informed to lose faith in it.

The three members for Leeds are Mr. W. St. J. WHEELHOUSE, Mr. ROBERT TENNANT, and Alderman JOHN BARRAN, and they were all present at the annual meeting, on Wednesday last week, of the Chamber of Commerce of their borough. The council, in their report, regretted that during the past year most of the staple trades of the town had been in anything but a flourishing condition. There were, however, towards the close of the year, the council added, some signs of improvement, which it was "earnestly hoped might develop into a thorough revival of activity." The report likewise dealt with questions affecting our export business, and especially the French Tariff and the Austrian Tariff, and it did not omit the Philadelphia Exhibition. Lightly touching upon these themes, Alderman BARRAN, M.P., who was the President, pointed out that the treaty with Austria expired on the last day of 1876, and that the French Treaty was on the eve of expiring. Steps had been taken in the case of Austria to make such terms as were believed might lead to the advantage of the country generally. Two difficulties had met them in connection with foreign trade. One was that Austria, Germany, France, and Italy had been to some extent suffering from the same depression of trade as ourselves. This had naturally led those who were engaged in trade, and who had not the same large experience of free trade as we had, to suppose that a little more protection for their domestic industries would be of great benefit. Another difficulty with which English traders had to contend was that a spirit of enterprise was growing up in these countries, the result largely of the good example set them by England, and the profitable results which had accrued to her by her enterprise. Of this the consequence was that we had to contend with competition far beyond anything we have known before. Nor was Alderman BARRAN prepared to expect that we should not have even greater competition in the future than in the past and the present.

Still, serious though it was, it did not discourage him; he had no fear but that England, "with her wonderful enterprise and industry, would be able to hold her own with any other nation in the world on fair and mercantile terms." These views were not shared by Alderman BARRAN's colleagues. Mr. WHEELHOUSE boldly declared that a course of action would have to be adopted which we may remark English traders are generally accustomed to associate with the term "retrogression." It is Mr. WHEELHOUSE's openly expressed view that we shall have to put a protective duty upon a large number of articles of commerce, or ensure reciprocal action. He would "not give our skilled labour, our machinery, our coal, and our iron, and get nothing in return." Mr. TENNANT, who we need hardly say is the proprietor of extensive colliery property in Yorkshire, did not share the apprehension of his colleagues that the trade of the country is declining, and thought that we should be "able to hold our own, though at present we were no doubt labouring under a state of almost totally unprecedented depression." Nevertheless, even Mr. TENNANT could not but think that in dealing with some of those countries which did not take the same view as ourselves "if we insist on something like reciprocity it might not be a bad thing; it might, indeed, prove that the best means of imbuing them with an acknowledgment that free trade was best for themselves as for the whole world would be by not allowing them with impunity to put prohibitive duties on our goods whilst they (the foreigners) were permitted to introduce their manufactures into this country without restriction."

Correctly based and confident of the future as are the sentiments held and expressed by the one member for Leeds, it would be unsatisfactory in anticipation of the future if they stood alone by the side of the sentiments of his colleagues, for we must not conceal from ourselves that we have still to face a greater competition than we have ever yet experienced. If at this stage of the struggle men's hearts fail them what are we to look for when the tug of war is intensified? The immense impetus given by free trade to the industrial capabilities and resources of this country were never more clearly shown than now when the Board of Trade returns demonstrate a greater aggregate business with foreigners in 1876 than ever before. The ability which free trade has afforded us of supplying our products at a low price has come to our aid at the required time, enabling us to sell our produce (iron excepted) in greater aggregate quantities than ever, and thus to save our people from the distress which has pervaded America and every continental country save France. The opinions held by men who are members of the Legislature go for much in deciding the action of the nation whose laws they formulate, but members can only be what their constituents make them. It is satisfactory then to note that neither the protectionist nor the reciprocity views of Mr. WHEELHOUSE or Mr. TENNANT were supported either by the parliamentary conditor of those gentlemen, or by another leading member of the Chamber who took an active part in the business. Speaking in the behalf of the mining and mineral industries we should be concerned if this were not so. On account of the features of our current foreign trade in iron we might by some people be expected to have feelings in sympathy with the retrogressive opinions under review. The views, however, which we expressed last week should be a sufficient

explanation of our confidence. The returns for 1876 do not, as a whole, cut up badly. "The coal and iron trades of Great Britain have by no means a cheerless outlook." Very different would be the state of things if there should be any serious attempt to impose protection or to demand reciprocity. The very first interests which would be affected would be those classified under the comprehensive designation of mining and metal industries. And so at the Leeds meeting a foremost Yorkshire ironmaster declared. Mr. JAMES KITSON, jun., pointed out that the iron trade was one of the industries which had suffered the greatest amount of depression. In that trade he was, he said, greatly interested; yet he would say, "Do not practice reciprocity upon the articles I manufacture." Mr. KITSON attributed the depression in the iron trade more to the recoil from over production, stimulated by "the rotten system of foreign loans," and the undue formation of limited liability companies, than to foreign tariffs. These causes have had their influence in bringing about that which we now see; still it is most desirable, as Mr. KITSON would doubtless admit, that Chambers of Commerce and others should use their utmost influence with our own and with foreign Governments to secure the adoption of a liberal foreign policy abroad, but we must not forget that we tried reciprocity from 1814 to 1832, and year by year our trade went down. Do not let us attempt to repeat that error, nor foolishly sigh for the onions and the garlic of Protectionist bondage.

OUR COAL ABROAD.

Without taking any account of the quantities of coal shipped for the use of steamers engaged in the foreign trade, we may venture to affirm that our coal exports have grown very greatly during the last ten years, and that they acquired an unprecedented importance in 1876. The annexed table, illustrating the quantities and value of the coal exported by us during the ten years ending with 1876, inclusive, fully justifies the observation which we have just made:—

Year.	Coal exported.	Value.
1867	10,415,778 Tons	25,392,452
1868	10,537,804	5,352,525
1869	10,538,425	5,067,790
1870	11,405,082	5,506,890
1871	12,747,989	6,246,133
1872	13,198,494	10,442,321
1873	12,632,333	13,205,618
1874	13,927,205	11,984,621
1875	14,341,916	9,653,088
1876	16,265,859	8,901,718

There is an extremely satisfactory feature in this comparative statement—viz., that while the price of the coal exported from our shores in 1873 averaged more than 20s. per ton—in 1876 the corresponding price was only about 11s. per ton. This return to lower prices has probably stimulated the external consumption of our coal; but whether it has done so or not it cannot fail to have been of material aid and assistance to many branches of the national industry.

The increase which occurred last year in our coal exports was very generally distributed among our external coal customers, and was especially noticeable in the case of France. That country made a grand parade some 15 years since of its intention to become independent of its neighbours in the matter of its coal supplies, but as a matter of fact France now takes more coal from us than at any former period of her history. Twenty years since, 1,000,000 tons would have been considered a good average exportation for twelve months to France; but in 1876 we sent the French no less than 3,250,599 tons of our coal, as compared with 2,706,210 tons in 1875, and 2,370,661 tons in 1874. The increase in last year's deliveries will be seen to have been no less than 544,389 tons, and it is a matter of doubt whether the demand for our black diamonds upon French markets will not continue to expand. Our coal exports to Russia have also been increasing rather materially of late, having amounted in 1876 to 1,182,384 tons, against 895,890 tons in 1875, and 833,765 tons in 1874. Russia has vast stores of coal wealth, but she does not work them, Russian statesmen being, unfortunately for Russia, more intent upon acquiring additional territory for the Czars than upon securing more material comfort and prosperity to the Russian people. Germany, again, has plenty of coal, and the Germans even sell coal tolerably freely to their old antagonists, the French; nevertheless, we sent the Germans last year 2,271,901 tons of our coal, as compared with 2,172,384 tons in 1875, and 2,057,029 tons in 1874. Ever so many other countries also imported our coal more freely in 1876 than in 1875. Thus Sweden and Norway took last year 1,156,885 tons, against 1,136,109 tons in 1875; Denmark, 777,297 tons, against 749,399 tons; Holland, 478,993 tons, against 455,964 tons; Spain, 762,031 tons, against 693,196 tons; Italy, 1,226,205 tons, against 1,066,453 tons; Turkey, 294,214 tons, against 243,466 tons; Egypt, 543,068 tons, against 533,492 tons; and British India, 750,182 tons, against 615,345 tons. There can be no doubt we fancy that low prices had something to do with the increased foreign demand generally observable last year. Thus in 1872 we sent abroad, as will be seen on reference to the tables previously given, 13,198,494 tons of coal, valued at 10,442,321; in 1873 the corresponding exports sank to 12,632,333 tons, the value rising to 13,205,618. In 1874, 1875, and 1876 the value of our coal exports gradually declined, and the quantity of coal exported increased almost as steadily, if, indeed, not quite as steadily. The great general advance in our coal exports during the past decade is not a little remarkable.

BRISTOL MINING SCHOOL.—In the recent Government examination held at Cardiff on the 9th, 10th, and 11th inst., for certificates of competency as mine managers, the following engineers, who are or have been students in the Bristol Mining School, obtained certificates:—Mr. Daniel Thomas, Gelli, Ystradgynog; Mr. Daniel Williams, Llanelly; Mr. E. C. Williams, Hirwaun.

ROCK-BORING MACHINERY.—We understand that the Foxdale Mining Company and the Ballacorkish Mining Company are about to use rock-boring machinery, with the view of greatly accelerating their mining operations. The air-compressing and other machinery is to be supplied by the well-known Sandcroft Foundry Company, while for both of these mines the Darlington Rock-Borer has been selected. Under the direction of the eminent mining firm who manage the two mines in question it may reasonably be expected, as it certainly is to be ardently desired, that the use of these powerful appliances will be attended by the success that their introduction into these extensive undertakings so well deserve. We the more gladly notice the matter because mining generally under its present conditions in this country is undoubtedly much in need of any such important aid in the way of saving time or money that able men of spirit and enterprise may be able to bring to bear upon it.

NEW ZEALAND.—A letter from Wellington (Nov. 15) says that the gold mining interest seems to be reviving all over the colony. At Auckland and Otago the yield from the quartz mining operations has considerably increased of late; and, although the newly-opened alluvial diggings at the Kumara, on the west coast of the southern island, are unable to satisfy the great rush of expectant diggers, they are, notwithstanding, likely to support a very considerable population for some time to come.

COAL AND IRON IN THE UNITED STATES.—The extent of railroad in operation in the United States at the commencement of 1877 was estimated at 80,435 miles, as compared with 77,311 miles at the commencement of 1876. It follows that 3124 miles of railroad were opened in the United States in 1876. In 1875 new lines were only opened in the United States to the aggregate extent of 1905 miles, so that there was a sensible revival last year in the work of railroad construction in the United States, and the demand for railroad iron must have rather materially improved in consequence. The chief engineer of the Erie Railway Company has prepared a long statement in respect of improvements required to be carried out in the track, &c., of that system, and which would, he thinks, have the effect of enabling the company to earn a larger revenue at a greatly reduced cost. During the past year the Lake Shore and Michigan Southern Railroad Company substituted 10,500 tons of steel rails for iron rails upon its system. The aggregate production of anthracite and bituminous coal in Pennsylvania to December 23

last year amounted to 21,888,275 tons, as compared with 23,574 tons in the corresponding period of 1875, showing a decrease of 1,785,940 tons last year.

THE AMERICAN SLATE TRADE.—We learn from New York that the slate business in the Lehigh Valley never had a better outlook than at the present time. The export of slate to foreign countries is increasing. From the port of New York large shipments were made between Dec. 5 and 16. During the time mentioned there were shipped to England, Ireland, and Scotland 2143 cases of school slates, and 515 tons of roofing slate. Taking that as an average shipment for the year, we have 47,717 cases of school slates and 10,745 tons of roofing slate, equal to about 3,223 squares, and this vast amount sent to the British Isles alone, from whose extensive quarries kinds of slate were some years ago shipped to almost every market in Europe. Should this foreign demand continue to increase in same proportion it has for the last three years it will absorb one square of slate and every case of school slate that can be produced in the United States with the present facilities. This foreign demand will, therefore, necessitate a largely increased production for supply of the home trade.

EXPORTS OF STEAM-ENGINES.—The value of the steam-engines exported from the United Kingdom in December was 119,673, compared with 164,796, in December, 1875, and 256,287, in December, 1874. For the whole of 1876 the value of our steam-engines exports was 1,937,579, as compared with 2,631,333, for the whole of 1875, and 3,255,685, for the whole of 1874. The decrease in the demand for our steam-engines (the expression including also railway locomotives) appears to have been very general last year. The value of the steam-engines exported to Russia last year was 147,866, against 333,102, in 1875; to Germany, 89,182, against 231,033; to Italy, 151,319, against 170,688; to British India, 247,908, against 436,459; and to Australia, 209,561, against 233,399. It is fair to add that the value of the steam-engines exported to France increased from 22,044, in 1875 to 31,892, in 1876. In the case of Spain there was also an advance from 74,879, in 1875, to 85,970, in the case of Egypt from 20,197 to 33,324; and in the case of Brazil from 66,417 to 108,686.

STEAM-BOILER EXPLOSIONS.—In the Judicial Committee of the Privy Council on Tuesday, before Sir J. Colville, Sir B. Peacock, Sir R. Collier, their lordships were engaged the whole day in considering an application for the prolongation of the patent granted John Smith, engineer, for improvements in furnaces and boilers to prevent explosions, by the National Boiler Insurance Company, assignees of the patent, having offices at Finsbury and Manchester. Mr. Ashton, Q.C., and Mr. Macony were for the petitioners; Mr. G. Q.C., M.P., and Mr. C. Bowen represented the Crown. Mr. Bramwell, the well known civil engineer, and other gentlemen gave evidence in support of the application. It was alleged that the invention was a great public benefit by an improvement in a fusible plug, the use of it to prevent danger by the deficiency of water. In ten years 82 explosions had occurred through over-heating, and 87 persons were killed and 80 injured, besides considerable property damage. No accident had happened where the fusible plug of the application had been used. Until the last four years the double cover plug had not been much purchased, and the remuneration had, it was urged, been inadequate for the great benefit conferred on the public. Sir Barnes Peacock gave judgment at some length. Their lordships refused the application to prolong the patent, on the ground that sufficient remuneration had been received.

REPORT FROM CORNWALL.

Jan. 18.—Dolcoath account supplies us with our chief subject for comment this week, and it shows very clearly the state to which our tin mines have been reduced by the low prices ruling, when we find that the three months profit on a sale of 200 tons of black tin was only 1615s., and that it was seriously debated whether a dividend should be declared at all. That the dividend declared had been earned was clear, and that under such circumstances it was wise to declare it we held to be equally clear, not merely for the present advantage of the adventurers in Dolcoath, but for the sake of the mine in general, upon which the announcement that Dolcoath had suspended dividends could not fail to have a most seriously depressing effect. Dolcoath is one of the sheet-anchors of mining enterprise, and it is very satisfactory to find that the old mine is looking well as ever.

We do not concur in all that Mr. Rule says or does, but what we go fully with him or not it is quite evident that he does an immense amount of good in provoking investigation, and rousing the mining men out of the grooves in which they have been for the part so long intent to work. And when he recommended that a mine as Dolcoath should smelt its own tin we do thoroughly agree with him. The process is exceedingly simple, and the plant required would be inexpensive, and if centuries ago the streams on the moors could smelt their produce with their rule appliances surely Dolcoath could do it now. There is a theory that different qualities and productions of black tin require to be mixed to give a satisfactory result in smelting, but it is a theory that no one has heard outside smelting circles, and on the face of it is not at all to accept; in fact, we regard it merely as a smelting "bogey." The direct advantage which the large mines like Dolcoath and Tincroft, Carn Brea, East Pool, and their neighbours would gain in smelting their own tin would be that they would put in their pockets ordinary smelting profits. To dispose of the metal they would have to watch the markets as the smelters do now, and so far as outside can see in the long run very profitably. And this would require a certain amount of floating capital. We gather from the Dolcoath report that the actual cost to that mine of "stocking" tin during the last 12 months has been 1000%, which has had to be paid to the bank in interest and commission, holding the tin in store instead of turning it into money having required the banking account to be enormously overdrawn. Hence Mr. Holden's idea that it would have been better to wipe off this debt than declare a dividend. However, if the standards go up, as Capt. Josiah Thomas appears to say they will do ere long, the extra profit derived on the tin held on will easily wipe this off.

Nothing could be more satisfactory than the account given of the boring machine, and the effect of its introduction on the future fortunes of the mine will be incalculable. Originally all that was hoped for was more speedy development. Now we are told that not only can the drives and sinkings be carried on far more speedily, but at a cheaper rate—that not only is time economised, but money as well. Hitherto Dolcoath has been in leading strings in this matter it is now walking alone. Capt. Thomas in the course of his speech said:—"The boring machine contract was over, the six months' term having expired about three weeks since. The patentees had returned to Lancashire, and the machine was now being worked by their own men. During the six months they had been driving rather more than three times as fast as by hand labour, and the cost of it, if it had been in their own hands, would not be so much as hand labour, 5s. per fathom. There was no doubt that this was a vast advantage in opening out the mine. If they merely drove one it would not perhaps, make much difference, but if they could drive all their drives three times as fast as by hand labour, and sink the shaft at the same rate, it was plain that in time they would be able to more than double their returns. He believed that the success of the boring machine had been fully established, for it could not be more severely tried than it had been in Dolcoath. It was the deepest mine in the county, and, perhaps, about the hardest ground, and if the machine succeeded there it would succeed anywhere."

Dolcoath has been fortunate in regard to the floods, and, thanks to the energetic supervision and excellent management, Capt. Thomas was able to say that during the floods they had been able to let the mine drain to the bottom, and the only inconvenience experienced was that arising out of the extra cost of pumping, which would amount to 100% a month. But this was not much when compared with the expense to which other mines had been put. If the engines and pitwork had not been in first-rate condition they would not have been able to keep the mine drained as they had done, but

In the summer work, and machinery. Cornish mael world. Mr. Ch. King of the South work of calcine the threaten and, the for an improv to be gradually

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some of the collieries, which as yet have not been fully tested in the district. At the Lund Hill Colliery they are putting down some extensive machinery, from plans prepared by Mr. F. Hurd, for lifting water against a pressure of 300 lbs. to the square inch. A spur-wheel is also being made at the Union Foundry, Barnsley, for the Oaks Colliery, 12 ft. in diameter, and weighing upwards of 4 tons.

On Friday last the men employed at the Union Foundry had their annual dinner at the Queen Hotel, Barnsley, when a large party sat down. A most agreeable evening was spent, and the toasts and speeches evidenced the kind and cordial feeling existing between employer and workmen.

The Shirland Colliery, which was flooded on Monday week, has been so far exhausted of foul air as to permit of search being made for the 44 horses, which had been without food in the workings since the accident. The ponies were got at on Sunday night. Eleven were alive and two missing, having broken loose and wandered into remote passages. The explorers found two of the larger animals alive and well, and good hopes are entertained for the remainder. The safety of the animals is due to the promptness with which Mr. Kimpton, the engineer in charge of the colliery, improvised tubing to force air into the pit. The horses were ravenously hungry, and bit furiously at their rescuers, but soon came round under the influence of bran mash and warm beer. Great surprise was expressed at the fact of the horses having been able to live in an atmosphere which could not support combustion. It is expected that all will be ready for work in a few days. It will be remembered that the Shirland Colliery was the unsuccessful co-operative speculation of the South Yorkshire Miners' Association. "One of the Trustees of the debenture-holders" writes:—"Messrs. Benton and Woodwiss paid 11,000, not 10,000, and they purchased only the debenture-holders' interest in the colliery for that sum. There still remains to be sold the freehold coal and freehold land and wagons of the value of 15,000."

On Saturday evening the workmen employed at the Railway Foundry, Barnsley, where the well-known patent metallic pistons of Bower and Quarters are made, held their annual dinner at the Wellington Hotel. The chair was occupied by the senior partner, Mr. Quarters, who in responding to the toast of the health of the firm said that he had recently visited several of the leading centres of the iron trade and found business in a very depressed state, and he considered the men who had full work should aid their employers in every way they could in maintaining that position, for the sacrifice should not be all on one side.

THE SCOTCH MINING SHARE MARKET—WEEKLY REPORT AND LIST OF PRICES.

During the past week there has again been a considerable business done. In shares of iron and coal concerns Bolekow, Vaughan, A. have advanced 15s. per share; also Benhar, Lochore and Capletrae, and Scottish Australian (new) each 2s. 6d. On the other hand, Ebbw Vale fallen 7s. 6d., and Marbella, 5s.

In shares of foreign copper concerns Tharsis have fallen 25s. per share, Tharsis (7/4 paid), 15s., and Huntington 6d. The accounts from Yorke Peninsula are very satisfactory. Panulicillo remain at 30s. to 35s.

In shares of home mines a considerable business has been done in Glasgow Caradon, and the prices, on the announcement that the dividend is to be 2s. per cent., carrying over 910l. (which makes 7 1/2 per cent. for the year 1876), touched 22s., but is now only 1s. 6d. lower on the week, at 25s. 6d.; new shares 2s. lower. Bampfylde are 10s. to 12s.; Cargill, 6 to 8; Marke Valley, 20s. to 25s.; New Consols, 20s. to 25s.; North Laxey, 19s. to 21s.; Parys Mountain, 11s.; Penrith, 10s.; buyers; Prince of Wales, 4s.; sellers; Rookhope, 20s. to 21s. 3d.; South Condurrow, 6s.; West Tankerville, 37s. 6d. to 40s.; Wheel Agar, 45s., buyers.

In shares of gold and silver mines, Flagstaff has gone up another 25s. per share, and Last Chance 10s., while Richmonds have continued the downward move to the extent of 22s. 6d. per share this week. The fall in these shares is certainly likely to slacken the confidence of investors in American mines, for weekly wires of \$50,000 runs or so should not be accompanied by falling markets for the shares. In these circumstances should not people keep their money tight at home and close their ears firmly against all the flaming reports of mines that are not paying a rap until justice is secured for some properties, and a sort of fair return for the large amount of capital already ventured in Yankee speculations? In shares of oil concerns Uphall have risen 10s. per share, and Young's Paraffin 2s. 6d.

Dalmieny are now quoted ex div. There is no change to record in shares of miscellaneous companies, but there is more disposition to do business. Prospho-Guano have advanced to 11s.

THE HUNTINGTON COPPER AND SULPHUR COMPANY, AND MR. HENDERSON.—The First Division of the Court of Session have affirmed Lord Young's judgment, finding that Mr. William Henderson, chemical manufacturer, Glasgow, was not entitled to receive 10,000l. for his share in promoting the Huntington Copper and Sulphur Company, and ordering him to re-pay the money to the company.

Subjoined are this week's quotations, &c., of mining and metal shares quoted on the Scotch Stock Exchanges:—

Per share.	Paid up.	Rate per cent.	Description of shares.	Last price.
40	40	5 1/2	COAL, IRON, STEEL.	7 1/2
10	10	5 1/2	Arnstons Coal (Limited)	7 1/2
10	10	5 1/2	Banhar Coal (Limited)	7 1/2
10	10	5 1/2	Ditto	7 1/2
100	45	35s.	Bolekow, Vaughan, and Co. (Lim.)	54
10	10	10	Calumet Gas Coal (Limited)	8
10	10	10	Chillington Iron (Limited)	82s. 6d.
32	29	10	Ebbw Vale Steel, Iron, and Coal (Lim.)	104
10	5	10	Effe Coal (Limited)	70s.
10	10	10	Glasgow Port Washington Iron & Coal (L)	50s.
10	10	10	Ditto	50s.
10	10	10	Lochore and Capletrae (Limited)	8 1/2
10	10	10	Marbella Iron Ore (Limited)	75s.
10	10	10	Monkland Iron and Coal (Limited)	67s.
10	10	10	Ditto	67s.
100	100	10	Nant-y-Glo & Blaenau Ironworks pref. (L)	19 1/2
6	5 1/2	10	Omoa and Cleland Iron and Coal (Lim.)	35s.
1	1	12 1/2	Scottish Australian Mining (Limited)	40s.
1	1	12 1/2	Ditto New	10s.
Stock	100	5	Shotts Iron	10
4	4	5	COPPER, SULPHUR, TIN.	20s.
4	4	5	Canadian Copper Pyrites (Limited)	20s.
10	10	20s.	Cape Copper (Limited)	40s.
1	1	15	Glasgow Caradon Copper Mining (Lim.)	25s. 6d.
1	1	15	Ditto New	16s.
10	9	10	Huntington Copper and Sulphur (Lim.)	15s.
25s.	23s.	10	Kanawha Mining (Limited)	61s.
4	4	10	Panulicillo Copper (Limited)	35s.
10	10	6 1/2	Rio Tinto (Limited)	60s.
20	20	7	Ditto, 7 per cent. Mortgage Bonds	13 1/2
100	100	5	Do., 5 per cent. Mortgage Bonds	6 1/2
10	10	10	Russian Copper (Limited)	40s.
10	10	25	Tharsis Copper and Sulphur (Limited)	21 1/2
10	7	25	Ditto New	14 1/2
1	1	10	Yorke Peninsula Mining (Limited)	8s.
1	1	10	Ditto, 15 per cent. Guaranteed Pref.	21s. 3d.
1	1	10	GOLD, SILVER.	8s. 6d.
20	20	5	Australian Mines Investment (Limited)	14s. 6d.
10	10	5	Emma Silver Mining (Limited)	7s.
5	5	5	Flagstaff Silver Mining (Limited)	20s.
5	5	5	Last Chance Silver Mining (Limited)	6 1/2
10	7	5	OIL.	9 1/2
1	1	5	Dalmieny Oil (Limited)	57s. 6d.
1	1	5	Ditto	13s. 6d.
10	10	5	Uphall Mineral Oil (Limited) "A"	11 1/2
10	10	5	Ditto "B" Deferred	10
10	8 1/2	5	Young's Paraffin Light & Mineral Oil (L)	14 1/2
50	25	10	MISCELLANEOUS.	20 1/2
30	14 1/2	10	London and Glasgow Engineering & Iron Shipbuilding (Limited)	11 1/2
10	10	5	Peruvian Nitrate (Limited)	11 1/2
10	10	5	Scottish Wagon (Limited)	11 1/2
10	4	5	Ditto New	87s. 6d.

NOTE.—The above lists of mines and auxiliary associations are as full as can be ascertained, Scotch companies only being inserted, or those in which Scotch in

vestors are interested. In the event of any being omitted, and parties desiring a quotation for them, such information as can be ascertained from time to time to be inserted in these lists, they will be good enough to communicate the name of the company, with any other particulars as full as possible.

J. GRANT MACLEAN, Stock and Share Broker.
Post Office Buildings, Stirling, Jan. 13.

OUR RAILWAY IRON ABROAD.

Our railway iron exports in December showed a little more steadiness, but were, nevertheless, upon a restricted scale. The total shipments for the month were 24,986 tons, against 24,714 tons in December, 1875, and 20,096 tons in December, 1874. For the whole of last year, however, they attained an aggregate of only 413,656 tons, against 545,981 tons in 1875, and 782,665 tons in 1874. The demand for our railway material in the United States has become greatly curtailed, having only amounted in 1876 to 372 tons; all that can be said is that it has not yet come to an end. In 1875 we sent the Americans 17,790 tons of railway iron, and in 1874 91,491 tons; the contrast between such figures as these and the miserable 372 tons set against 1876 is certainly disheartening in the last degree. The Russians were our best customers for railway iron last year, having taken 86,181 tons from us during the past 12 months; in 1875, however, we sent them 111,243 tons, and in 1874 147,754 tons. The Canadian demand ranked next in importance, amounting last year to 60,201 tons, against 85,170 tons in 1875, and 62,850 tons in 1874. The Australian consumption of our railway material fell off very greatly in 1876, having amounted to 29,587 tons, as compared with 82,521 tons in 1875, and 86,665 tons in 1874. On the other hand, the exports of our railway iron to British India experienced a considerable expansion last year, having risen to 51,168 tons, as compared with 34,205 tons in 1875, and 39,987 tons in 1874. Our South American railway iron connection has, of course, been materially affected by the weakening of the credit of Peru and some other South American States, but the Brazilian demand has kept up well. It may be interesting to append the exports of our railway material to Brazil, Peru, and Chili during the last three years:—

	1874.	1875.	1876.
Brazil	22,889	16,595	23,400
Peru	18,457	14,942	2,654
Chili	22,206	14,318	3,246
Total	63,552	45,855	29,300

Chili still maintains a good credit before the world, but even the work of Chilean railway construction has been proceeded with at a slackened rate, and with considerable caution. We have been dealing with the general phrase "railway iron," but it may be well to note that of the 413,656 tons of railway iron exported last year 363,808 tons were rails, the balance being general railway material. The total of 363,808 tons, representing rails properly so called, was made up as follows:—Iron rails, 190,054 tons; steel rails, 173,754 tons. No steel rails whatever were exported by us to the United States last year, but the Americans took from us 161 tons of iron rails in 1876. Steel rails were shipped as follows from our ports to various countries last year:—Russia, 66,029 tons; Sweden and Norway, 3928 tons; Germany, 12,943 tons; Spain, 6279 tons; Italy, 2027 tons; Brazil, 4096 tons; Chili, 2088 tons; British America, 36,247 tons; British India, 10,130 tons; Australia, 10,442 tons; and other countries, 19,545 tons.

One remarkable feature in the statistics now available as to our railway iron shipments for 1876 is the apparent failure of a return to lower prices to produce any revival in the external demand for our railway material. Thus, in 1874 the average price obtained for the railway iron and steel which we exported was a trifle over 12l. per ton. In 1875 the corresponding average fell to 10l. per ton, but still the exports declined in extent and importance. In 1876 the average declined still further, to as nearly as possible 9l. per ton; but, notwithstanding this, the shipments have become smaller and smaller, and it seems doubtful even now whether they have yet quite reached their lowest point. The explanation of this departure from the rules which ordinarily control and regulate commerce is, probably, to be found in the fact that if prices have fallen in this country, they have also declined among neighbouring communities; so that practically, from an export point of view, our rails are as dear now as ever they were. We cannot, indeed, discover any elements of immediate hope in the statistics which we have been analysing, but a change for the better can scarcely fail to take place some day.

WEST PATELEY BRIDGE (Lead).—This young mine is fully responding to the favourable anticipations entertained at the formation of the company. The lode in the 10 for nearly 20 fms. long has a leader of lead 6 to 9 in. wide, worth fully 1 ton per fathom. This lode has been seen in the roof, bottom, and forebrest of the level, and for a depth of 5 fms. in the winze, and is widening out at the bottom of the winze. Two other lodes are coming in from the north-west about 5 fms. from the present west end of the level, and there are already branches of lead ore 5 to 6 in. wide in the end. The North Rake vein will also be intersected shortly, which, judging from the surface workings, is a lode of considerable value. The first sampling of between 20 and 30 tons of lead will be made in a few weeks. The general prospects are most encouraging.

COMBARTON MINE.—The old workings at Harris's shaft have been cleared 15 fms., at which depth a level driven by the old workers has been seen for 16 fms., and the end not yet reached. The 15 west was driven 2 fms., at which point there is a cross-course, on the other side of which the agent thinks a good lode will be met with, as up to the cross-course the lode contains some good quality silver-lead. A sample of the ore roughly taken from the lode where seen, east of the shaft, has been assayed, and gives a produce of 50 per cent. for lead and 37 oz. of silver to the ton of ore.

GORSFORD AND MERLYN.—A great discovery of lead is reported here. The new shaft to work the same is complete.

GROGWINTON (Lead).—The reports and accounts for the half-year ending December will be in the shareholders' hands in a few days, the meeting being called for the 31st inst. The revenue account shows that 600 tons of lead have been sold in the half-year, at an average price of 14l. 17s. 6d. per ton, the balance available for dividend being 3695l. 15s., out of which the directors propose to pay a dividend of 20 per cent. per annum, as against 12 1/2 per cent. for the corresponding period of last year. The long drift on the No. 1 lode (a very ancient work, which has been resumed by the present company) is said by Mr. Kitto to be changing for the better. It is at this point the old miners state that the late owners expected to find large deposits of lead; and it would seem that the anticipations may be fully realised. The company give notice of certain special resolutions to be proposed at the meeting; they appear to be a continuation of the judicious policy which has resulted in placing this company in its present satisfactory position.

CWM DWYFOR MINE (Carnarvonshire).—Amongst the new companies registered this week we observe that one under the title of Cwm Dwyfor Mining Company (Limited) has been formed to take over this property from the liquidator of the Cwm Dwyfor Copper and Silver-Lead Mines Company (Limited), under an arrangement sanctioned at special general meetings of that company. Carnarvonshire would appear at the present time to be attracting considerable attention in the shape of new lead mining enterprise, and we understand that there is every reason to believe from the appearances presented that the Cwm Dwyfor Mine, in the hands of the new company, will shortly yield to those of the old shareholders who take up on the terms arranged the shares to which they are entitled in the new company, some return on the capital embarked in it.

"INVESTMENTS AND SPECULATIONS."—Mr. Charles Thomas, of Great St. Helen's, has just issued the seventh edition of this useful and reliable work. We have on former occasions called attention to the variety and value of the information which Mr. Thomas gives with regard to the different classes of mining properties. The present edition, however, which is very considerably enlarged, deals at some length and with great ability with almost every class of security which is known on the Stock Exchange. Prominence is given to British mining as an eligible and safe field for investment, and interesting and trustworthy details are given relative to the

different mining districts. These are points on which Mr. Thomas from his long and particular acquaintance with mining, especially in Cornwall, Devon, and Wales, is well qualified to speak with authority. Without unfairly depreciating foreign investments, Thomas points out with great truth that in selected home investments there are the elements of safety and permanency, and draws special attention to several young and promising mines which are particularly worthy of attention at the present moment.

THE HUNTINGTON COPPER AND SULPHUR COMPANY.—The First Division of the Scotch Court of Session have affirmed Lord Young's judgment, finding that Mr. William Henderson, chemical manufacturer, Glasgow, was not entitled to receive 10,000l. for his share in promoting the Huntington Copper and Sulphur Company, and ordering him to re-pay the money to the company. In giving judgment the Lord President expressed his opinion that Mr. Henderson had accepted the 10,000l. as a bribe to induce him to bring the company into existence, and to perform the duties of a director after it was formed. He thus placed himself in the position of having a duty to discharge while having a personal interest directly conflicting with that trust.

BELGIAN LOCOMOTIVE BUILDING.—The Belgium Minister of Public Works has let contracts for 25 locomotives for the Belgian State railways. Ten of these engines have been ordered from John Cockerell Company, and the remaining 15 from the Compagnie. The contract rates are 15 per cent. below those at which orders for 35 other engines were given out a month since.

PETITIONS HAVE BEEN PRESENTED TO THE HIGH COURT OF JUSTICE for winding up of the Positive Government Security Life Assurance, Ruby Consolidated Mining, and the Kermor Fisheries and Reservoirs Companies.

IMPORTANT NOTICE.—REDUCTION OF POSTAGE ON THE "MINING JOURNAL."—In consequence of the new POSTAL CONVENTION, which came into operation July 1, the postage of the Mining Journal to many countries will be reduced one fourth. Henceforth the subscription will be 1l. 10s. 4d. per annum (30s. postage included), for the following countries. The amount will, if desired, be collected at the subscriber's residence at the end of each year. The subscription continues until countermanded.—Austria, France, Belgium, Denmark (including Iceland and the Faroe Islands), Egypt, Germany, Gibraltar, Greece, Holland, Italy, Luxembourg, Netherlands, Norway, Portugal (including Madeira and Azores), Roumania, Russia, Servia, Sweden, Switzerland, United States, Turkey, Morocco, Tunis, and the Canary Islands. Spain 1l. 10s. (50 frs.)

LEAD ORES.				
Date.	Mines.	Tons.	Price per ton.	Purchasers.
Jan. 12	Minera	35	£ 215 6 0	A Eytton.
— ditto	64	15 6 0	ditto	
— ditto	20	15 11 6	ditto	
— ditto	10	14 18 6	Walker, Parker, & Co.	
— ditto	6	15 1 6	A. Eytton.	
15	Cwm Eilan	14	14 1 0	Nevill, Druce, & Co.
16	Foxdale	64	13 19 0	ditto
— Lead Hills	100	14 18 6	Sheldon, Bush, & Co.	
17	De Broke	20	15 0 6	ditto
— Wye Valley	60	15 3 6	Burry Port Company	
18	Old Treburgett	28	26 17 6	ditto
— Rookhope	35	13 0 6	Looke, Blackett, and	
— Tankerville	109	15 12 6	George Burr.	

Date.	Mines.	Tons.	Price per ton.	Purchasers.
Jan. 12	Minera	32	£ 5 11 6	Villiers Spelter Co.
— ditto	15	5 11 6	ditto	
— ditto	28	5 8 6	ditto	
— ditto	19	6 13 0	ditto	
— ditto	25	5 8 6	ditto	

WANTED.—An APPOINTMENT, by a young CHEMIST, who has had several years' experience in ASSAYING and ANALYSING METALS and their ORES in a well known METALLURGICAL ESTABLISHMENT. Address, "L. S.," 14, Alvington Crescent, Shacklewell Lane, Stoke Newington, London, E.

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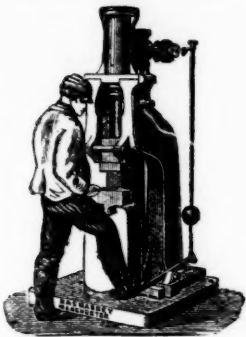
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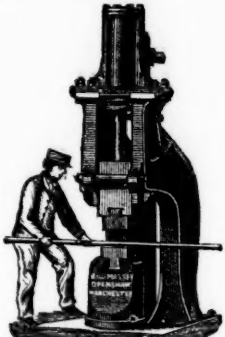
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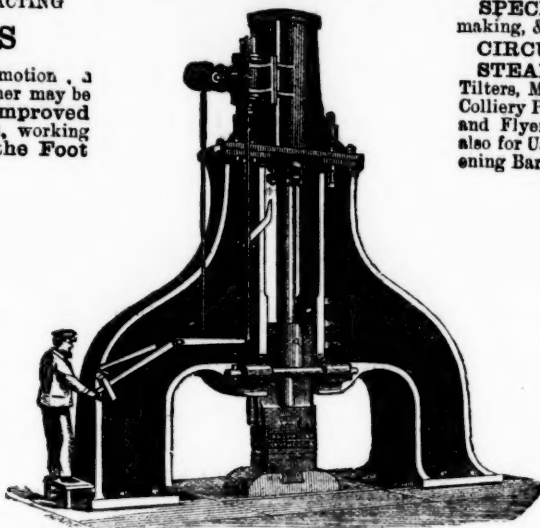
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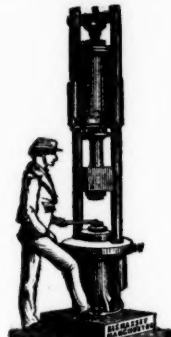
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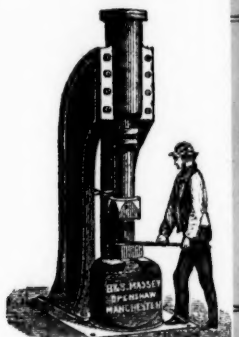
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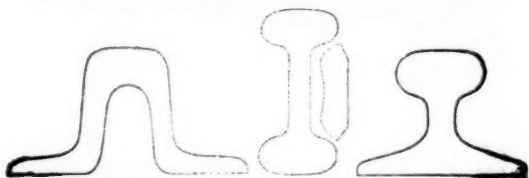
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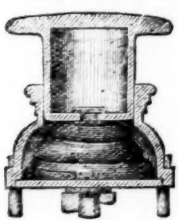
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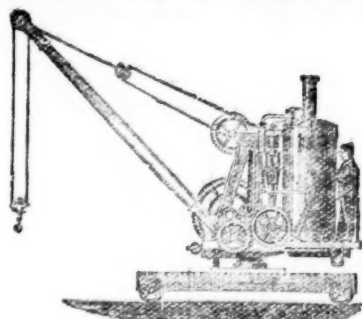
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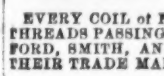
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60	Cooke, William, and Co. [L.]	40 0 0
20	Darlington Iron Co. [L.]	10 0 0
5	Davy Brothers [L.]	22 10 0
5	Diamond Fuel Co. [L.]	5 0 0
3	Edub Valley Co. [L.]	28 0 0
10	For, Samuel, and Co. [L.]	80 0 0
10	General Mining Ass. [L.]	10 0 0
20	Great Western Coal Co. [L.]	17 0 0
2	Gwyngwillim Colliery Co. [L.]	2 0 0
18	Hopkins, Gilkes, and Co. [L.]	11 0 0
60	Knowles, Andrew, and Sons [L.]	17 0 0
10	Llay Hall Coal, Iron, & Firebrick [L.]	10 0 0
8	Littledene Woodside Coll. Co. [L.]	8 0 0
50	Lydney, Ogmere, & Tondur Co. [L.]	50 0 0
10	Lydney and Wipzpool Iron Ore [L.]	8 5 0
10	Marbella Iron Ore Co. [L.]	10 0 0
60	Mars Steel and Iron Co. [L.]	8 0 0
10	Midland Iron Co. [L.]	10 0 0
5	Mold Argued Colliery Co. [L.]	5 0 0
10	Monkland Iron and Coal Co. [L.]	10 0 0
4	Mwyndy Iron Ore [L.]	3 10 0
100	Nant-y-Glo and Blaitha (8 p.c. pref.)	100 0 0
1	Nerbudda Coal and Iron	0 8 0
20	New Sharlston Collieries [L.] Pref.	20 0 0
10	Newport Abercrom Coal Co. [L.]	10 0 0
10	Northampton. Coal, Iron & Wagon [L.]	8 0 0
10	Northfield Iron Co. [L.]	8 0 0
1	Norton Green Coal [L.]	1 0 0
1	Palmer & Sons Building and Iron [L.]	25 0 0
100	Parkgate Iron Co. [L.]	14 0 0
20	Patent Nut and Bolt Co. [L.]	10 0 0
20	Patent Shaft and Axletree [L.]	10 0 0
20	Pelsall Coal and Iron [L.]	15 0 0
60	Phoenix Bessemer Co. [L.]	40 0 0
50	Rhymney Iron Co. [L.]	50 0 0
100	Sandwell Park Colliery Co. [L.]	100 0 0
60	Ditto New	10 0 0
60	Shotts Iron Co. [L.]	50 0 0
100	Sheepbridge Iron and Coal [L.]	85 0 0
60	Silkestone & Silkestone-on-Tyne Cl. & Iron [L.]	27 0 0
100	Skelton Ironworks [L.]	20 0 0
60	Somerostron Iron Co. [L.]	20 0 0
20	South Wales Coal Co. [L.]	17 0 0
100	Staveley Iron and Coal Co. [L.]	60 0 0
100	Ditto ditto New	10 0 0
20	South Cleveland Ironworks [L.]	20 0 0
10	Swansea Valley Steam Coll. Co. [L.]	8 0 0
100	Thames Iron Works Company	100 0 0
25	Tredgare Iron and Coal Co. [L.]	12 0 0
25	Ditto B. shares	25 0 0
100	Trerarton Mining Co. [L.]	12 0 0
1	United Bituminous Collieries [L.]	1 0 0
10	Vancouver Coal [L.]	10 0 0
100	Vickers, Sons, & Co. [L.] 6 p.c. deb.	100 0 0
60	Welsh Ironworks Co. [L.]	50 0 0
25	W. Cumberland L. and Steel [L.]	20 0 0
10	West Mostyn Coal [L.] 12 p.c. pref.	5 0 0
5	West Swansea Colliery Co. [L.]	5 0 0
10	Whitehaven Iron Co. [L.]	10 0 0
100	Wigan and Whiston Coal Co. [L.]	70 0 0
100	Wigan Coal and Iron Co. [L.]	75 0 0

NON-DIVIDEND FOREIGN MINES

Shares.	Mines.	Non-Dividend Foreign.	Paid.	Last Fr.	Clos. Fr.	Last Call.
90000	Anglo-Australian, s, Victoria*	.....	2 10 0	—	—	Sept. 1872
8000	Angulima Phosphate, West Indies (4000 issued)	.....	10 0 0	—	—	..... Fully pd.
12000	Argentine, g, Argentine Republic	.....	5 0 0	0	—	..... Fully pd.
10000	Australian Central, g* (also 6000 deferred shares)	.....	1 0 0	—	5½ 6	..... Fully pd.
3000	Bellavista, s, Peru* (210 shares)	.....	10 0 0	—	—	..... Fully pd.
30000	Blue Bent, <i>Hyd.</i> , California	.....	8 0 0	3½	—	..... Fully pd.
50000	Braganza, g, Brazil*†	.....	0 15 0	3½	—	..... Fully pd.
12000	Camp Flacey, s, U. S.	.....	10 0 0	—	—	Oct. 1873
25000	Cesena Sulphur Company, Romagna, Italy*	.....	10 0 0	—	—	..... Fully pd.
50152	Chontales, g, s, Nicaragua*	.....	2 0 0	—	—	..... Fully pd.
14000	Condes of Chili, s-d	.....	2 0 0	—	¾ ¾ ¾	..... Fully pd.
35000	Excelsior Hydroallic Gold Washing Co., California	.....	0 0 0	—	6½ 8 5½	..... Fully pd.
100000	Eschequer, g, s, California*	.....	1 0 0	—	2½ 1½ 1½	Dec. 1871
40000	Holcombe Valley, g, s, California	.....	1 0 0	—	—	..... Fully pd.
6000	Hornachos, s-d, (210 shares) Spain	.....	10 0 0	13½	13½ 13½	..... Fully pd.
90000	Imperial Brazilian Collieries, Brazil*	.....	8 0 0	—	—	..... Fully pd.
130000	I. X. L. s, d, California*	.....	1 0 0	1	—	..... Fully pd.
4000	La Javali, s, Nicaragua*	.....	2 0 0	—	¾ ¾	..... Fully pd.
2500	La Mancha, s, Newfoundland	.....	2 0 0	—	¾ ¾	..... Fully pd.
12000	Lanetosa, s, d, Viscaya, Spain (2½ shares)	.....	10 0 0	11½	10½ 11½	..... Fully pd.
75000	Malabar, g, Colombia* (7515 issued)	.....	1 15 0	—	—	Mar. 1876
40000	Maipaso, g, Colombia* (7490 pref. shares, fully paid)	.....	1 0 0	—	¾ ¾ ¾	..... Fully pd.
30000	Menzenberg, c, Honnet, Germany*	.....	5 5 0	—	¾ ¾ ¾	..... Fully pd.
70000	Monte Loreto, g, c, Italy*	.....	5 0 0	—	—	..... Fully pd.
4588	New Bensberg, s, l, Germany	.....	5 0 0	—	—	..... Fully pd.
60000	New Guabrata, c, Venezuela*	.....	8 0 0	—	—	Nov. 1875
20000	Quelana Kapanga, g, Coromandel*	.....	8 0 0	4½	3½ 4½	..... Fully pd.
5000	Oregon, g, Oregon* (preference shares)	.....	8 0 0	4½	3½ 4½	..... Fully pd.
50000	Panulicillo, c, Chili* (2500 debentures)	.....	4 0 0	4½	4 4½	Sept. 1875
50000	Pestarena United, g, Italy*	.....	4 0 0	2	1½ 2	..... Fully pd.
50000	Providencia and New Rosario, Mexico*	.....	3 0 0	6s.	4s. 6s.	..... Fully pd.
50000	Rica, g, Colombia* (40000 issued)	.....	1 0 0	—	—	..... Fully pd.
22,151,000	Rio Tinto, c, Huelva, Spain	.....	0 0 0	¾	¾ ¾	..... Fully pd.
100000	Rossa Grande, g, Brazil* (21 shares)	.....	8000	61	59 61	..... Fully pd.
20000	Russla Copper, Orenburg and Ufa*†	.....	0 19 0	—	—	..... Fully pd.
25000	San Pedro, c, Chili*	.....	10 0 0	—	—	July 1873
10000	Sierrita, c, Colorado*	.....	2 0 0	2½	1½ 2½	..... Fully pd.
75000	Snowdrift, s, Colorado*	.....	1 0 0	1½	1 1½	..... Fully pd.
50000	Tecoma, s, Utah*	.....	2 0 0	—	—	..... Fully pd.
30000	Thornhill Reef, g, Australia*	.....	10 0 0	—	¾ ¾ ¾	..... Fully pd.
43714	United Mexican, s, Mexico*††	.....	1 0 0	—	—	..... Fully pd.
14000	Utah, g, s-d, Utah*	.....	28 15 3	—	2½ 2½ 2½	May 1875
75000	Yorke Peninsula, c, South Australia.	.....	8 0 0	—	¾ ¾ ¾	..... Fully pd.
40000	Yorke Peninsula, c, South Australia Preference	.....	1 0 0	—	¾ ¾ ¾	..... Fully pd.

* Have made calls since last dividend was paid.

TELEGRAPH COMPANIES

"8t." Anglo-American	100	0 0	69
10 Brazilian Submarine	20	0 0	87 1/2
20 Direct United States Cuba	20	0 0	11 1/2
10 Eastern	10	0 0	7 1/2
10 East, Exten., Australia and China	10	0 0	7 1/2
10 Great Northern	10	0 0	7
25 Indo-European	25	0 0	18 1/2
10 Mediterranean Extension	10	0 0	2 1/2
8 Reuters	8	0 0	10 1/2
"8t." Argentine	100	0 0	23 1/2
10 West India and Panama	10	0 0	2 1/2
20 Western and Brazilian	20	0 0	2 1/2
\$1000 Western Union, 7 per cent. Mort. Bonds \$1000	1000	0 0	100

8tk. Atlantic and Great Western Leased	100	0	0	40
Lines, Rental Trust	100	0	0	40
25 Austral. Mort. Fund and Finance [L.]	5	0	0	3 1/2
25 Australian Agricultural	21	10	0	50
10 Avonside Engine [L.]	7	10	0	4
8tk. Bantoline and Ohio, 5 p. cent.	100	0	0	11 1/2
8tk. Cent. of New Jersey Con. Mort.	100	0	0	7 1/2
8tk. Cent. of Pacific Calif., 1st Mort. 6 p. c.	100	0	0	10 1/2
25 City of London Real Property [L.]	12	0	0	3 1/2
25 Copper Miners of Eng. (7 p. c. p. e.)	25	0	0	3 1/2
5 Credit Foncier of England [L.]	5	0	0	1 1/2
5 Diamond Rock Boring	4	1	0	1 1/2
15 English and Foreign Credit	8	0	0	4 1/2
16 Fore Street Warehouse [L.]	14	0	0	13 1/2
15 Foster, Porter, and Co. [L.]	10	10	0	10 1/2
5 Gen. Phos. & Chem. Works Co. [L.]	5	0	0	0
1 Glaisdale Whinestone Quarry	1	0	0	0
17 Hudson's Bay Company	17	0	0	15 1/2
10 Huntington Copper and Sul. Co.	9	0	0	8 1/2
8tk. Illinois Central, \$100 shares	100	0	0	7 1/2
8tk. Illinois & St. Louis Barge, 1st Mort.	100	0	0	52
8tk. Ditto, 2nd Mort. 7 p. cent.	100	0	0	52
8tk. Illinois Cent. Sinking Fund, 5 p. cent.	100	0	0	50
8tk. Ditto, 6 p. cent.	100	0	0	103
7 1/2 Imperial Credit [L.]	7	10	0	7 1/2
Ditto, Surplus Certificate	—	—	—	5
8tk. Lehigh Val. Con. Mort., A, 6 p. cent.	100	0	0	59
10 Milner's Safe [L.]	10	0	0	1
25 National Discount [L.]	5	0	0	9 1/2
8tk. N. Cent. Rail. Con. Mort., 6 p. cent.	100	0	0	88
5 Patent Gunpowder Company	5	0	0	4 1/2
10 Pawson and Co. [L.]	6	0	0	40
50 Peninsula and North Wales Ry., 1st Mort.	100	0	0	35
8tk. Pennyl. Gen. Mort. 5 p. cent., 1905	100	0	0	100
8tk. Ditto, Con. Sinking Fund, 6 p. c., 1905	100	0	0	100
8tk. Scottish Aust. Investment Company	100	0	0	170
8tk. Ditto, 6 p. cent. Preference	100	0	0	121
10 Silver Light (ord. sh.)	10	0	0	0
20 Suez Canal shares	20	0	0	0
12 Telegraph Construc. & Mainte. [L.]	12	0	0	26
5 Ditto, Second Bonus Three per Cents	5	0	0	3 1/2
10 Tharsia Sulphur and Copper Co.	10	0	0	21
8tk. Union Pacific Land Grant, 1st Mort.	100	0	0	97
8tk. Union Pacific Railway, 1st Mort.	100	0	0	99 1/2

* Limited Liability Companies; † quoted on the Stock Exchange. I have paid dividends.

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